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VOL. LI
No. 5

MAY,
1936

The American City

ISSUED MONTHLY BY THE

American City Magazine Corporation
470 Fourth Ave., New York

EDGAR J. BUTTENHEIM, Pres. & Mgr.
HAROLD S. BUTTENHEIM, Editor
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Subscription, $2 per annum in United States and Canada ($3 to foreign countries)

Single copies, 35c

Back numbers available

Entered as second-class matter, July 29, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879. Printed in U. S. A.

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In THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

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IN LOS ANGELES . . at the A.W.W.A. CONVENTION

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PHOTOS BY UNDERWOOD & UNDERWOOD

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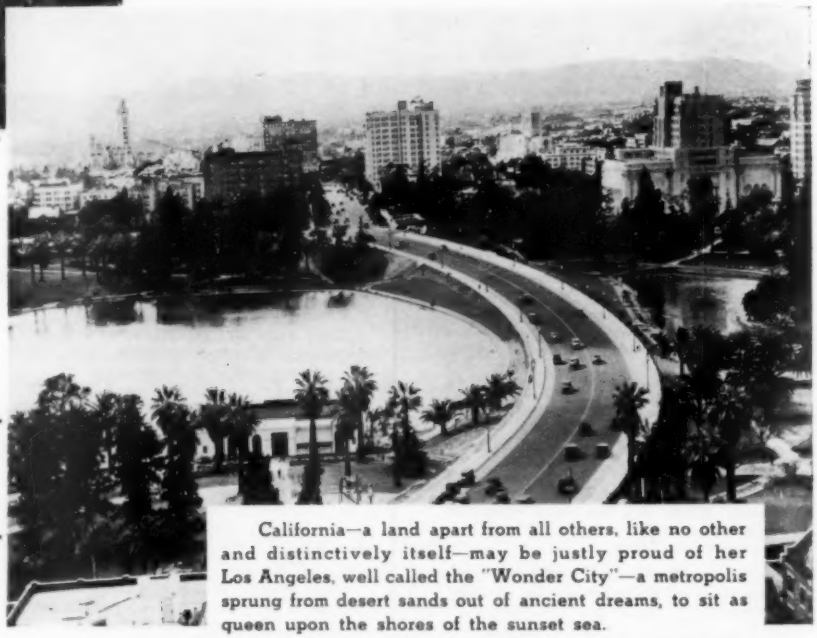

SKYLINE OF LOS ANGELES FROM WESTLAKE PARK

California—a land apart from all others, like no other and distinctively itself—may be justly proud of her Los Angeles, well called the "Wonder City"—a metropolis sprung from desert sands out of ancient dreams, to sit as queen upon the shores of the sunset sea.

Los Angeles extends a cordial invitation to the members of the American Water Works Association and affords the opportunity of seeing one of the greatest water works systems of the world, for a supplementary water supply, built at a cost of $25,000,000, is brought to the city, a distance of 233 miles from the snowy slopes of Mt. Whitney, the highest mountain in the United States. The capacity of the intake is 270,000,000 gallons per day.

The metropolis of this Golden Empire, Los Angeles is the largest city in Western America. The population has increased from a scant 4,000 persons in 1860 to 1,294,600 inhabitants. The business district, with its ultra-modern shops and substantial edifices, presents a striking appearance. From the heart of this section you may view against the blue California sky the summits of Mt. Lowe and Mt. Wilson, where is located the world's largest reflecting telescope. Los Angeles harbor is now one of the great harbors of the world. Its growth has been phenomenal.

Five thousand miles of paved roads and streets radiate from Los Angeles, through palm-lined drives leading past unique homes built in the Spanish hacienda fashion, far-flung orange and walnut groves and forests of derricks in the oil fields.

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Housing—Planning—Public Works

Proposed United States Housing Act of 1936

A MEASURE which conforms in its major provisions to the consensus of informed opinion on Federal aid to low-rent housing and slum reclamation as disclosed in the recent AMERICAN CITY-ARCHITECTURAL FORUM questionnaire, is now before Congress. It is the proposed United States Housing Act of 1936, introduced in the Senate on April 3 by Senator Robert F. Wagner and in the House of Representatives on the same day by Congressman Henry Ellenbogen. Excellent summaries of this bill have been prepared by Coleman Woodbury, Director of the National Association of Housing Officials, and by Charles Abrams, Acting Counsel of the New York City Housing Authority. The following analysis combines parts of these two digests:

The bill provides for a permanent, full-time agency, called the United States Housing Authority, to discharge the Federal Government's responsibility in the housing of families of low income. The phrase "families of low income" is defined in the bill as "families who cannot afford to pay enough to induce private enterprise in their locality to build an adequate supply of decent, safe and sanitary dwellings for their use."

The bill also deals with "public housing agencies," which are state or local governmental bodies with power to develop and administer low-rent housing. They include what are commonly called local housing authorities. "Limited profit agencies" are cooperatives, limited-dividend, or non-profit corporations strictly regulated by law or by the Authority.

The distinction between slum clearance and low-rent housing is recognized in the bill. Slum clearance is defined as the demolition and removal of buildings from a slum area, regardless of the future use of the area, and may include the adaptation of the area to public purposes such as parks. The development of low-rent housing includes all steps in planning, financing, land acquisition, demolition of old buildings, construction, and equipment of adequate housing for families of low income. Thus it may include slum clearance.

The principal function of the United States Housing Authority is to encourage and assist local housing agencies in furnishing decent low-rent housing in their communities, and for this purpose it may make loans and grants to them amounting together to the entire project cost. Grants, payable outright or over a period of years, may go as high as 45 per cent of such cost, and the balance may be loaned, amortizable over as long as 60 years.

The debtor-creditor attitude which, in the past, effectively excluded local housing authorities from participation in Federal projects, has now, at last, given way to the realization that it is a social obligation to provide decent housing for every family, and that the liquidation of this obligation is of great benefit to the whole community.

The bill provides necessary funds from the following sources:

By direct appropriation.....	$326,000,000
$ 1,000,000 for initial capital stock	
50,000,000 for the year 1937	
75,000,000 for the year 1938	
100,000,000 for the year 1939	
100,000,000 for the year 1940	
By borrowing from Reconstruction Finance Corporation	100,000,000
By issuing its own Federally guaranteed obligations	550,000,000
$100,000,000 on or after July 1, 1936	
150,000,000 on or after July 1, 1937	
150,000,000 on or after July 1, 1938	
150,000,000 on or after July 1, 1939	
Total amount available.....	$976,000,000

This financial policy affords the use of a minimum of direct Government funds, appropriated only as needed, with the greater portion of the necessary moneys to be drawn from the supplies of presently dormant private capital seeking investment in secure tax-exempt guaranteed obligations.

The bill permits the leasing of demonstration projects to "public housing societies" organized, exclusively to administer low-rent housing, by persons in the lower income groups who desire such accommodations, and who will operate the project under governmental supervision, without financial profit to themselves. To assure local autonomy, the consent of the local public housing agency in the locality must first be obtained. Not more than twenty-five million dollars in any year may be lent to limited-dividend corporations, and no such loan may exceed 85 per cent of project cost.

The bill leaves the question of taxation on projects open for negotiation with local governments. Considerable difficulty and discussion have been caused by this in the past. The Authority may agree to pay annual sums in lieu of taxes, not, however, to exceed the amount of the taxes that would be payable if the project were not exempt.

Establishment of Local Construction and City Development Committees Urged by National Chamber

IN a pamphlet published last month the Chamber of Commerce of the United States, through its Construction and Civic Development Department Committee, recommends the establishment in each local Chamber of Commerce of a representative and active Construction and City Development Committee. The activities of such a committee in relation to those of a Civic Affairs Committee are outlined as follows:

"On first consideration there may appear to be the possibility of conflict between the proposed Construction and City Development Committee and the customary or long-established activities of civic affairs committees, which most chambers of commerce have under one title or another. Further reflection, however, will reveal that there is a natural division between activities which are concerned primarily with the physical side of the community's development and those which are primarily concerned with the civic side. It is the physical side which is embraced in city development, as the term is used in this pamphlet. This physical side necessarily involves planning, designing and construction and the products and services of the construction industry.

"The customary activities of civic affairs committees are not primarily concerned with the construction of physical facilities. This usually would be an incidental interest only. Civic affairs relate to the human side of the community's development. This human side might properly be called the civic side of the community's development. It embraces the interest of the local chamber of commerce in such important matters as public health, fire prevention, education, recreation, city beautification, good citizenship, and not infrequently celebrations of one kind or another. These activities of course will continue as heretofore under the direction of the civic affairs committee of the chamber, supplemented as needs be by specialized committees, in accordance with the practice of the particular chamber."

Among the activities proposed for a Construction and City Development Committee, for which definite suggestions are presented in the pamphlet, are zoning, reclamation of blighted and obsolete urban areas, urban land policy, and long-time financing programs for public improvements. The pamphlet is obtainable on application to the Chamber of Commerce of the United States, Washington.

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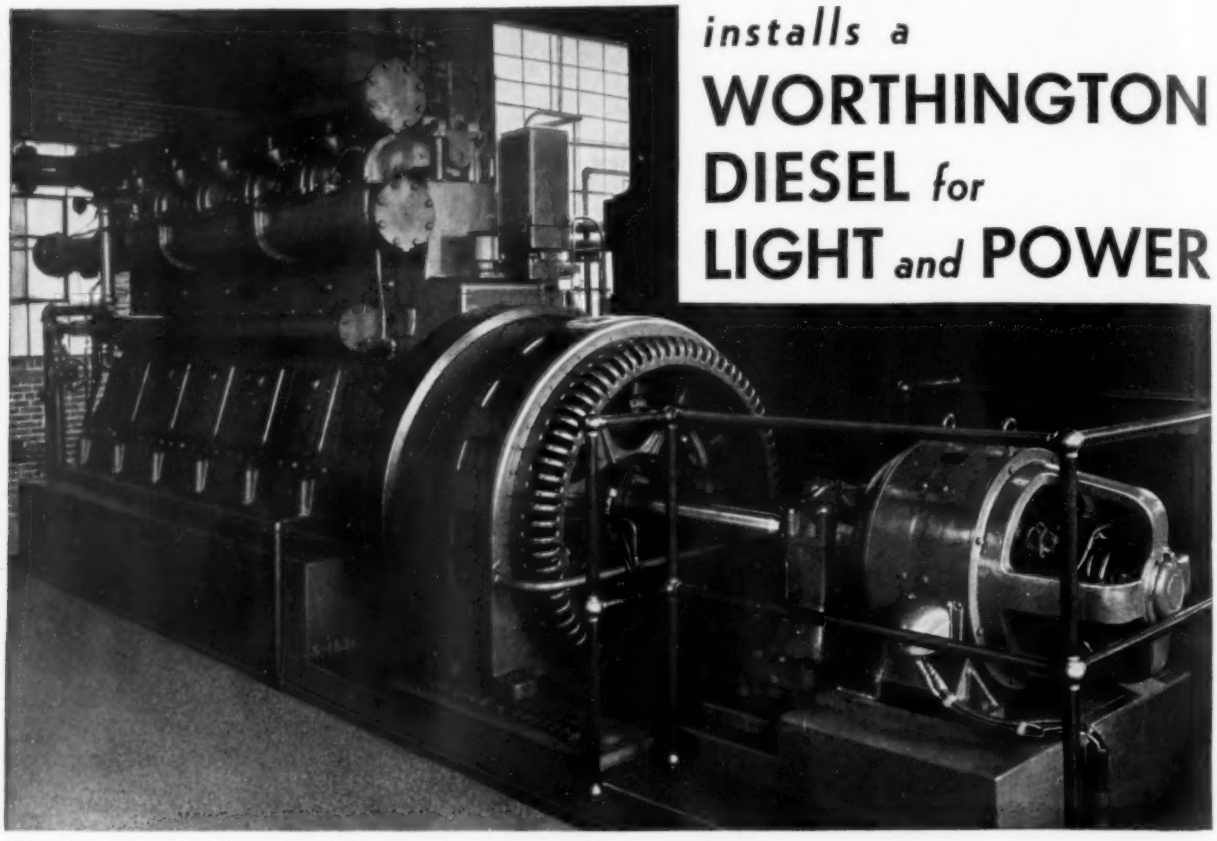

Worthington 450-hp. Diesel Engine driving 300-kw. generator in Municipal Power Plant, Ford City, Pennsylvania

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WORTHINGTON offers the services of an organization unsurpassed in its ability to analyze correctly any power problem . . . with more than 35 years of successful engine building and application experience to support its recommendations.

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Our Municipal Notebook

More Light on the Road From the Same Lamp

ONE of the best routes toward acquiring a better product is, first, to get the best possible service out of equipment already owned. A number of cities are now pursuing this course with respect to their street lighting. Desiring a better quality and quantity of light, instead of merely installing larger lamps they are purchasing more efficient luminaires and are thus getting all the light they can from the existing sources. The largest project of this character is the one now under way in New York City, as described in full on page 117 of the February issue. Trenton, N. J., has been similarly improving the lighting of some of its main thoroughfares, by the use of asymmetric bowl refractors and improved luminaires, without increasing the size or number of lamps. A great many cities need to do this kind of thing. It is not only wasteful, but it is missing a great deal of pleasure, good business and safety, to have ¼-footcandle where it is easily possible to have ½-footcandle using the same lamp. The cost per unit to achieve this is only a few dollars, and the same equipment will serve when the time comes for increasing the size of the lamps. That time will come, not for the mere pleasure of spending more money for energy, but in order to enjoy a larger glimpse of the tremendous and increasing possibilities inherent in street and highway lighting.

Rebirth of the Trolley

WHEN the public had to use the trolley or go afoot, such literature as the following was not written:

"Passengers will experience an almost complete absence of vibration, and the car's contribution to the roar, crash and rattle of modern noises will be negligible. Wide windows contribute to the amount of daylight received so that passengers can read day or night with comfort."

This is from a description of 27 new trolley cars bought by the Baltimore Transit Co. Some will say that these de luxe vehicles are forced from a reluctant utility by the squeeze of gasoline buses and private automobiles. This is half-true, but the reluctance born of bloated shortsightedness has largely passed out of the transit picture. Present-day executives in the street-railway field are terribly in earnest about breaking even, let alone about making a profit besides. They point to this type of street car as a sort of vehicular Verdun guarding the 4½-billion-dollar investment in street railways. Brooklyn, N. Y., will have 100 of them with 60 seats and a magnetic brake that grips the rail instead of the wheel. Chicago will have 83, but with the important difference that two men, instead of one, will be required to operate the three-door openings. Boston and Pittsburgh will run 25 to 50 each; Los Angeles, 25. Some eight to ten cities have signed up already. It is a very healthy development that makes it necessary now to compare trackless vehicles, not with a moribund Toonerville Trolley, but with probably just about the best vehicle that can be built to run on local rails. By all means see page 81, this issue.

3.7 *Farms per Mile of Rural Electrification*

INDICATIVE of the opportunity that undoubtedly resides in rural electrification is the announcement made March 10 by Alfred H. Schoelkopf, President of Niagara & Hudson Power Corporation, that 7,000 farms and other rural customers would be added to the system. It is planned to build 2,000 miles of lines this year. This is at the rate of 3.5 customers per mile. At the end of 1935 the system companies had in operation 10,073 miles of rural distribution lines serving 28,634 farms and 123,392 other rural customers, or 15 customers per mile. Within the franchise territory, 45 per cent of the farms are electrically served, compared with a reported 12 per cent for the entire country.

It is interesting to note that Mr. Schoelkopf was one of the representatives of private industry who met with REA on May 20, 1935, out of which grew a nation-wide survey of the rural electrification problem. He had ample opportunity to see from the beginning, and from the inside, what this program means in potential customers and future revenue. In a broadcast on October 19, REA Administrator Morris L. Cooke said:

"Every private company should double its rural customers and more than double the current used. Let him think about what that means. The total kilowatt-hours consumed in the homes and on the farms of the United States can and will be doubled within the next few years. Bringing current to the doors of the farmers who now have to get along without any electricity at all is one major move in this direction."

It has been said that the municipal plants have been slow to seek participation in this program. However, in four recent allotments made in Iowa, four municipalities owning utilities will build a total of 376 miles and hook up 847 new customers. This is at the rate of 2.25 customers per mile, compared with the 2.8 farms connected to the Niagara & Hudson power system in addition to 12 non-farm customers in rural communities.

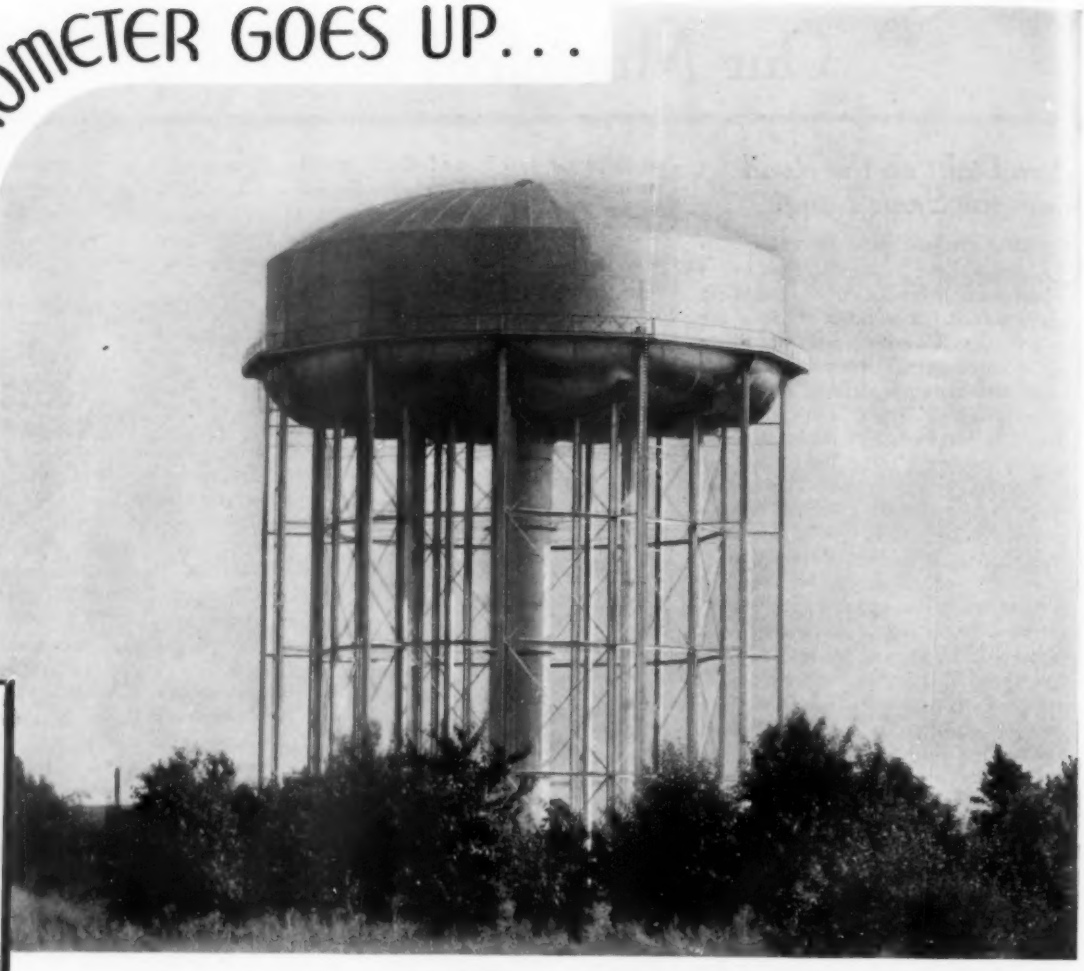
Where the municipal plant merely sells current at 1 cent per kwh at the busbars, it takes no risk and gains a stabilizing load that is on the plant 365 days per year. But where the plant, or the municipality owning a municipal electric plant, extends lines into the rural areas, it will of course endeavor to connect up the most and the best customers per mile. One of the most recent projects, which will purchase power from the Piqua, Ohio, municipal plant, will cost $1,200,000 and serve 3,620 customers along its 903 miles of lines, or about 4 customers per mile. At an annual cost of 13 per cent for interest, amortization, maintenance and taxes, plus the cost of the current at 1 cent and allowing for a 20 per cent line loss, plus a commercial charge of $5 per customer, the annual expense should be in the neighborhood of $228,000. The revenue would amount to $217,000, which will permit a farm to buy electricity for a little over 5 cents per kwh.

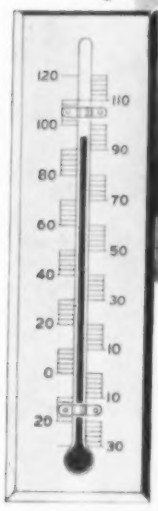
To April 2, REA has made 44 loans totaling $8,500,000 for 7,800 miles to serve 29,000 customers, or 3.7 per mile. At a rough estimate similar to the above, the total expense may be foreseen as $1,630,000, which again illustrates the economic principle underlying REA's work, in that it brings the cost per kwh under 5 cents. The program has as motive not only the social purpose of lifting much drudgery from the farm family, but also the performance of this service in an economic manner which should permit the customer to pay full cost of service. The private companies will certainly pursue this policy, and it behooves cooperatives and municipal plants to erect lines that will pay their way and not turn into extravagant examples of public ownership and operation.

Small Plant Successful

FIRST year of operation of a municipal electric plant at Gowrie, Iowa, population 1,059, proves, in the words of the consulting engineer, C. M. Stanley, of Muscatine, that "such systems are feasible and profitable in small communities if properly designed and operated." Total cost per kwh in 1935, including bond interest and depreciation, was 4.024 cents; net revenue 4.77 cents; net profit 0.746 cent per kwh.

. . WHEN THE THERMOMETER GOES UP. . .





. . . Sandusky Will Again Thank Elevated Storage for Ending "Water Shortage" Worries

Water works engineers and citizens alike in Sandusky, Ohio, have just about forgotten the "water shortage" worries they used to have prior to the erection of the 1,000,000-gal. Radial Cone elevated tank shown above. Now approaching its sixth summer in service, this tank has demonstrated conclusively its value in helping the water department provide adequate flow and pressure during the heaviest summer peaks year after year.

But it was not always thus. Back in the old days, many Sandusky consumers had to put up with supply pressures diminished as much as 50 per cent below maximum on hot days. Now, a variation of 10 per cent is considered unusual.

For the city's water department, large-capacity elevated storage has meant even more than ability to give improved service. Savings resulting from more economical system operation have played an important part in helping the department remain in good financial condition and this in turn has been the occasion for much public commendation for department officials.

In Sandusky, as in many other cities, large capacity elevated storage has produced savings in two ways. Pumps have become more efficient because they work against a more uniform head and at a more uniform rate. Power costs are lower because more pumping can be done during off-peak periods when power rates are lowest.

Similar improvements in service and reductions in costs are possible for many cities. Write for data and full information.

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Water Treatment—Water Rates

Use of Chemicals at Springfield, Ill.

THE total water purified and delivered at the Springfield, Ill., water works for the year ending February 28, 1935, amounted to 2,562 million gallons, or 7.00 million gallons per day. The operating cost of the purification plant, including maintenance, was $39,733.75, giving a unit cost of $15.51 per million gallons delivered. This is an increase of $1.01 per mg in purification cost, of which the chief item of increase was in the amount and price of lime.

Lime used during the fiscal year amounted to 1,853 tons. Analyses of each car showed an average of 94.4 per cent available calcium oxide as received. The maximum was 95.4 per cent, and the minimum 92.6 per cent. The total cost of lime delivered to the plant was $14,349.92. This is $3,147.40 more than in the previous year and represents an increase of 15 per cent in quantity and 11.5 per cent in price.

Filter sulphate of alumina used amounted to 123 tons or 94.5 pounds per million gallons. A total of 10.7 tons of chlorine was used, averaging 8.45 pounds per million gallons. Sulphate of ammonia, which is approximately one-fourth ammonia, was used in the ratio of ammonia to chlorine of 1 to 2, the total tonnage being 21.

Nuchar in the amount of 4,513 pounds was used for odor control. The average per million gallons was 1.7 pounds, but this low figure is due to the fact that the material was applied only as indicated by routine odor tests. The usual dosage is from 10 pounds to 20 pounds per million gallons when required.

CHARLES H. SPAULDING,
General Superintendent, City Water, Light and Power Department.

Water-Softening Costs as Compared to Regular Treatment

AT Neodesha, Kans., a water-softening plant was placed in operation in September, 1931. The plant is of standard design and differs from one for plain purification only in the matters of chemical feeding, sludge removal and recarbonation. It has a rated capacity of 2 million gallons per day and cost approximately $75,000. The cost of that part of the plant necessitated by softening is about $15,000 or approximately 20 per cent of the total. The water is aerated, mixed with chemicals, settled, recarbonated, coagulated and filtered. Chlorine, ammonium sulphate and activated carbon are used regularly for sterilization and taste control.

It will be noted that the cost for chemicals chargeable to softening amounted to approximately 20 per cent of the operating cost in 1932, and about 14 per cent in 1933. This range was due to the fact that the raw water was softer during 1933 than during the previous year.

COST DATA

	1932	1933
Lime for year	$1,452.34	$882.40
Soda ash for year	957.48	566.49
Natural gas for year	64.44	73.44
Alum for year (chargeable to softening)	144.00	151.00
Total chemical cost chargeable to softening	2,618.26	1,673.33
Cost per million gallons	10.30	6.51
Cost per million gallons per parts per million of hardness removed	0.0042	0.0533
Chemicals for clarification, sterilization and taste control	223.43	570.18
Chemicals for softening	2,618.26	1,673.33
Power for pumping	4,544.38	3,298.00
Labor	5,363.00	6,349.90
Maintenance	874.88	173.27

Chemical costs previous to the construction of the existing plant, and when purification of the river water was the only object, ran about $4.00 per million gallons. It is evident, therefore, that the chemical cost chargeable to softening at this plant is from $2.50 to $6.50 per million gallons in excess of that for purification alone.

Little or no additional expense for labor or for pumping is involved in the softening process, but the additional fixed charges, on the additional plan required, must of course be considered. These charges amount to approximately $1,200 per year (8 per cent of $15,000) or about $4.67 per million gallons at the present rate of consumption. If the plant were operated at its full capacity of 2 million gallons per day, the fixed charges would be reduced to about $1.65 per million gallons.

In general, it may be said that the Fall River water at Neodesha can be purified and softened at a cost for chemical not far from 1 cent per 1,000 gallons, and that the reaction of the public is distinctly favorable to softening.

—From a paper presented by F. K. VANCE, Superintendent, Water and Light Department, Neodesha, Kans., presented before the Kansas Water and Sewage Works Association.

The Ammonia-Chlorine Treatment of Water

FROM the standpoint of time elapsed since the discovery of the chloramines which are the active agents in the ammonia-chlorine process, one would scarcely call the process new. In his paper on the development of the ammonia-chlorine treatment for water sterilization, before the Kansas Water and Sewage Works Association, Paul D. Haney, Assistant Chemist, Water and Sewage Laboratory, Kansas State Board of Health, reports some significant facts as follows:

As a means of eliminating tastes and odors which are inherent in the water, the process is almost valueless. As a means of preventing the formation of chlorophenols, the process is universally successful. For prolonged sterilization, the process is much better than chlorine alone. As an emergency cleanser of filter beds when infested by organic growths, it is successful where chlorine alone is ineffectual. The most generally used ratio of ammonia to chlorine is one to three. The process is of particular advantage for small plants where the variation in load is very wide. By being able to use higher residuals without chlorinous tastes, these small plants can adjust their treatment so as to insure safety at peak loads and yet not cause tastes at minimum load periods.

Water at $5.00 per Year per Fireplace

IN 1776 the Manhattan Company was granted a charter for pumping water for the citizens of New York. Wooden pipes were used and the price of water was $5 per year per fireplace. The number of fireplaces determined the fire hazard, hence the possible need for water. Water was sold to ships at 20 cents per hogshead of 63 gallons. A Newcomen steam engine brought from England furnished the power for this first New York pumping plant. Then a pumping station was equipped with an American-built steam engine made by James Stevens, whose son, Edwin, founded Stevens Institute of Technology at Hoboken, in 1870. This engine cost $6,000, and its annual maintenance cost for tallow, spun yarn, leather, and sundries was placed at $148 per year. The yarn was probably for making steam joints tight, the tallow for lubrication, and the leather for piston packing.

—Courtesy of *Esso Oil-Ways.*

New Water Rates in Litchfield, Ill.

THE City Council of Litchfield, Ill., in an ordinance passed and approved October 10, 1935, has set up the new rates below for water delivered to all consumers whose services are equipped with meters. The minimum quarterly rate is $3.00 and the charges are:

First	6,000 gals.	per quarter	50c per 1,000 gals.
Next	4,000	" " "	45c " " "
"	15,000	" " "	40c " " "
"	225,000	" " "	35c " " "
Over	250,000	" " "	12c " " "

A discount of 10% is allowed on bills which are paid in full on or before the 10th of the month in which the statement is rendered, provided the statement is issued at a regular billing period. If a statement is rendered at any other time by reason of discontinuance of service or other than regular service, the discount is allowed when payment is made within 10 days after the date on which the bill is rendered.

What is better than a cool, clear glass of water free from objectionable tastes and odors?

- *IS YOUR CITY'S DRINKING WATER SATISFACTORY?*
- *IS IT EVEN SLIGHTLY DISCOLORED?*
- *DOES IT HAVE AN ODOR?*
- *HAS IT A PECULIAR TASTE?*

If you have any of these water troubles

Use **MAGNECHAR No. 50**

AN ACTIVATED CARBON OF PROVEN MERIT
"OF HIGH PURITY AND UNIFORMITY"
in your Water Purification Plant

If you do not have a supply on hand write us for the name of your nearest distributor who can promptly supply you with MAGNECHAR No. 50.

Our thoroughly equipped *laboratory* and extensive *consulting service* are at your disposal — free from any obligation on your part, and, as always, strictly confidential.

Samples and quotations will be furnished you immediately upon request.

Don't delay, write us now for full information regarding MAGNECHAR No. 50.

ACTIVATED CARBON Magnechar
IMPURITIES REMOVED
TASTE, COLOR AND ODOR ADSORBENT
THE ACTIVATED CARBON THAT GIVES SATISFACTION

GENERAL CARBON & CHEMICAL CORPORATION

MONROE, LOUISIANA
O. W. Wahlstrom, President

Sewerage and Sewage Treatment

Explosive Gas Survey

EXPLOSIVE gases tend to accumulate in sewers and storm drains from leaks in adjacent gas mains, and their existence is a constant source of grave danger to the public and to workers in the sewers. The work of eliminating such explosive gas from sewers and storm drains in Los Angeles, Calif., is based upon the testing of the air in manholes for explosive gases by inserting a "sniffer" through the small pickhole in the manhole covers. The condition is thus determined instantly by the use of a Union Carbide Co., indicator and also a Short & Mason gas-leak indicator. Where conditions are found to be dangerous from the presence of natural gas, the gas companies are notified, and they immediately take steps to rectify the condition by locating and stopping the source, which is a leak in their mains or service pipe. Where the gas is other than natural gas, its source is traced and every possible effort is made to locate and stop it.

The testing is performed by an engineer and a helper, with an automobile for transportation. This is parked alongside the manhole being tested, to provide protection for the crew. This engineer also looks after the elimination of industrial wastes.

LLOYD ALDRICH,
City Engineer.

Costs of New Sewage Treatment Works at Bristol, R. I.

THE new treatment plant at Bristol, R. I., consists of coarse screening, plain sedimentation and chlorination of the effluent, with separate sludge digestion. Additional treatment is not necessary, because of the large dilution afforded in Bristol Harbor, which is a portion of Narragansett Bay. The total construction cost of the plant was $136,800, with other costs, including land, rights-of-way, engineering and inspection, legal, miscellaneous items, and interest during construction, amounting to $189,800.

The following table gives the breakdown of the construction costs.

TREATMENT WORKS

Clarifier	$11,240	= $7.10 per 100 gals.
Digester	10,050	= 6.10 per 100 cu. ft.
Drying beds	5,630	= 0.41 per sq. ft.
Control house, excluding equipment	9,670	
Sludge pump	700	= 7.20 per gpm capacity
Rack rake	1,430	
Chlorinator	1,700	
Lime feed machine	300	
Connecting piping	2,520	
Total	$43,240	= $17,300 per mgd capc'y. = 3.93 per capita

This information is taken from a paper by Richard S. Holmgren, Chief Engineer, New Hampshire Water Resources Board, Concord, N. H., and presented before the Sanitary Section, Boston Society of Civil Engineers. The design and supervision of the plant were by H. K. Barrows, consulting engineer, of Boston, Mass., with H. L. Scott as Resident Engineer, and Mr. Holmgren as Engineer in Charge.

Sewerage and Sewage Treatment in Hanover Borough, Pa.

HANOVER BOROUGH, in York County, Pa., founded in 1763 and incorporated in 1815, has a sewerage system valued at $400,000. The primary treatment plant, built in 1928 and 1929, cost $64,443.85; rights-of-way, $11,600; roadway, landscaping, additional equipment and buildings, $6,000; total $82,043.85. The secondary treatment plant built in 1933 and 1934 cost $71,224.04, less a grant of $20,157.18 from PWA. The primary system consists of Imhoff tanks and the secondary system of circular sprinkling filters. The sewage effluent from the sprinkling filters is chlorinated, and before entering the stream passes through a resettling basin.

The original sewage-treatment plant in Hanover Borough was built by a private company in 1901 because of a court order forbidding the further pollution of two branches of Forney Run. The borough purchased this system from the sewer company in 1916 at a cost of $89,989.85. Today there are 2,987 sewer laterals connected to homes and factories, and the total income from sewer rentals for one year is $24,606.80. There are 18.5 miles of 8-, 10-, 12- and 15-inch sewer pipe in the system.

Because of the unusual topography of Hanover Borough, there are four drainage areas which require five ejector stations in conjunction with the gravity system. The average daily flow is 1,150,000 gallons, while the capacity of the plant is 1,400,000 gallons. The cost of electricity for the sewage-treament plant and the five ejector systems is approximately $233.05 per month.

CHESTER A. ECKBERT,
Borough Manager.

Engines Operated by Sewage Sludge Gases

THE installation of engines to use sludge gas for power has been gradual and has developed along conservative lines. During the last four or five years, the development has been much more rapid than formerly. As early as 1907, an engine was operated by sludge gas at a leper colony at Bombay, India. This was, of course, a small installation and did not lead to any further development at that time.

About 1921, an engine of 25-hp was installed at Birmingham, England. This was so successful that a 150-hp engine was installed in 1927, followed by the installation in 1928 and 1930 of two more engines of 400 hp each. Since that time, one 540-hp engine and two 120-hp engines have been installed at Birmingham.

Within the last five years, Berlin, Germany, has also taken advantage of the savings resulting from the use of sludge gas in engines. In one of the plants, there are two 500-hp and one 750-hp gas engine, and in another plant there is an additional 750-hp engine.

In the United States, one of the earlier installations was at Charlotte, N. C. Most of the first installations were relatively small units and were made with engines normally used with gasoline and adapted, by minor changes, for the use of gas. The Charlotte engines were of this type. The first major installation of a strictly gas type of engine was that at Springfield, Ill., in 1932, started in operation in January, 1933.

—From a paper presented before the California Sewage Works Association, by SAMUEL A. GREELEY and C. R. VELZY, Greeley and Hansen, consulting engineers, Chicago, Ill.

MAJOR INSTALLATIONS OF ENGINES USING SLUDGE GAS, SEPTEMBER, 1935

City	No. Units	Horse-Power	Year Installed	Driving
OPERATING PRIOR TO SEPTEMBER, 1935				
Birmingham, England	1	150	1927	Generator
	1	400	1928	"
	1	400	1930	"
	1	540	1934	"
	2	120	1934	"
Berlin, Germany				
Wassmannsdorf plant	1	750	Between	Generator
Stahnsdorf	2	500	1927 and	"
	1	750	1932	"
Charlotte, N. C.	1	225	1928	Blower
	1	75	1928	Pump
Rockv Center, N. Y.	1	30 ±	1930	Blower
	1	40 ±	1930	Generator
San Bernardino, Calif.	1	40	1930	"
Springfield, Ill.	1	180	1932	Blower
	1	157	1934	"
Los Angeles, Co., Calif.	1	200	1935	Pump
Cedar Rapids, Iowa	1	230	1935	Generator
PROPOSED AND UNDER CONSTRUCTION				
Madison, Wis.	1	230	1935	Blower
Ann Arbor, Mich.	1	120	1935	"
Peoria, Ill.	1	550	1935	"
	1	300	1935	Generator
Coney Island, N. Y.	3	300		"
District of Columbia	1	1200		"

The SUN Never Sets on LAYNE PUMPS

Timbuktu or Toonerville . . . here, there, everywhere . . . name almost any spot on earth and the chances are that there you will find Layne Pumps and Well Water Systems efficiently and economically serving municipality or industry.

Layne is proud of this world-wide acceptance of its pumps and well water systems because it is definite proof that no matter what the conditions, LAYNE always means "more water . . . less cost."

If your city has a water supply problem, why not let Layne help you solve it. A letter or card will bring the nearest Layne representative. His visit entails no obligation so why not write today.

LAYNE & BOWLER, INC.

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World's Largest Water Developers

LAYNE PUMPS

AND WELL WATER SYSTEMS

Refuse Disposal and Street Cleaning

Personnel and Operation of a Collection Service

THE personnel of the garbage collection service of Akron, Ohio, is divided into three sections: supervisory, yard and special employees, and collectors. The supervisory group consists of the Superintendent, complaint and record clerk, route foreman and trouble shooter, foreman and starter for collectors, and the master mechanic. These men receive about 13 per cent of the total for salaries and wages.

The second group, comprising yard and special employees, consists of one auto mechanic, a cleaner and greaser, and three watchmen, who also collect dead animals. The third group consists of the collectors—12 to 17 truck drivers, depending on the season of the year, and 24 to 37 helpers.

There are 14 garbage carriers. Two of the three extra truck drivers are substitutes, or are pressed into service when any of the regular men do not report. The extra helpers are in the same category.

The city is divided into fourteen routes, exclusive of the "store" or midnight route. The carrier for this route leaves the yard at 11 P. M. and returns between 4 and 5 A. M., thereby making the truck available on one of the fourteen regular routes, with a different driver and helpers.

The above schedule is in effect during all months except July, August, September and part of October. The increase in the quantity of the garbage during this period requires the addition of two special routes to collect the excess in the fourteen regular routes, without additional trucks. The regular route trucks leave the plant at 4 A. M., and the first two reporting are sent out again on the two extra routes, with different crews of men.

Complaints for non-collection average thirty to forty monthly, which is considered insignificant when compared with about 50,000 stops every seven to ten days. From July 1 to October 1 each residence is visited once each week. From October 1 to June 30, the schedule is once every eight or nine days.

V. WISEMAN,
Superintendent of Garbage Collection.

Street Flushing in Toronto

MOTOR flushing has been generally adopted by municipalities as the most effective aid in street-cleaning work. It is the best means of removing the fine dust and dirt which escapes the patrolmen's brooms. In practice, flushing is done under pressure. The water is applied to the pavement under the pressure of a centrifugal pump by a horizontal perforated pipe or nozzle set at an angle, and in such quantity that all dust and dirt is carried into the gutter; and where the volume of water or grade is sufficient, this material is flushed into the catch-basins and hence off the street.

The Department of Street Cleaning of Toronto, Ontario, operates two electric and four gasoline-powered flushers. The electric flushers are operated under air pressure, while the gasoline flushers are operated by a centrifugal pump.

The electric flushers are used for night flushing in the downtown section. The streets receive a flushing each alternate night. The trucks are operated together, for by this method the best results are obtained, owing to the fact that it takes a few minutes for the dirt to become saturated, so that the second flusher may readily wash it into the gutter. Because of this, a light rain just before or during flushing aids considerably in obtaining real cleanliness, and is taken advantage of by operating the flushers as single units at such times.

STREET FLUSHING, 1924-1934, QUANTITIES AND COSTS

Year	Street Mileage Flushed	Quantity of Water Used (Gals.)	Total Cost	Cost per Mile
1924.....	3,332	18,355,600	$11,810.38	$3.54
1925.....	1,702	10,830,950	6,225.94	3.65
1926.....	1,615	8,950,000	5,255.41	3.25
1927.....	1,294	7,173,550	4,195.93	3.24
1928.....	2,002	9,563,600	6,379.65	3.18
1929.....	2,740	15,229,000	8,427.82	3.07
1930.....	3,931	20,230,000	12,809.06	3.26
1931.....	6,037	34,392,000	15,689.01	2.51
1932.....	4,492	25,465,000	12,313.02	2.74
1933.....	4,352	19,690,000	9,714.57	2.23
1934.....	6,687	24,818,000	10,747.48	1.61
1935.....	5,925	22,795,000	973.86	1.64

Street Cleaning in Reading, Mass.

THE streets are cleaned only by hand-brooming methods, the material is swept into the gutter, and removed by trucks. We have no motor street-cleaning equipment. The main thoroughfares are cleaned early in the morning before cars are parked to any great extent.

Catch-basins are cleaned by hand with long-handled catch-basin scoops, the material piled in the gutter, and hauled away in trucks. Suitable material thus salvaged is used when possible for filling.

ALEXANDER BIRNIE,
Superintendent, Board of Public Works.

Moving Household Refuse by Vacuum Tubes

IN Villeneuve-St. Georges, Rouen and Dieppe, France, and in one hilly district of Lyons where vehicular traffic is difficult, a pneumatic method of transporting household refuse is being used. Pipes of large diameter are laid under the streets, with one end permanently closed, while the other opens into air-tight containers in an incinerating plant. The whole system is worked under a vacuum by suction pumps which draw the refuse into the containers. Sloping shafts are sunk as branches to the main system at points where refuse is discharged into the system. These are usually about 200 feet apart in order to reduce manual labor to a minimum. They consist of a semi-circular channel, which receives the refuse and which is kept closed with a cast iron lid. After the refuse has been put in, the lid is shut down and at the same moment the trap is opened connecting the shaft with the main system which is under a vacuum. Atmospheric pressure causes the refuse to be drawn by suction into the pipes of the main system, through which it proceeds to the incinerating plant. Here it enters the containers, from which it is removed as desired. High-pressure streams of water are used for cleaning the pipes.

The process is particularly valuable for towns which have narrow, crooked or hilly streets. This is the case in numerous towns in France where refuse must be collected in the very old parts. This method, though not quicker than street hauling, is far easier and more hygienic, since no waste material is hauled through the streets.

Other refuse is collected at a station specially prepared to receive and treat it under the best possible conditions, and is then conveyed to the incinerating works either by day or night in vehicles specially built for this work. This considerably reduces the expense for wages and trucks.

—From a paper, "Refuse Collecting in France," by M. G. CHALUMEAU, Chief Engineer, Lyons, France, presented at the Second International Congress on Public Cleansing, held in Frankfort, Germany, August, 1935.

Trends in Refuse Disposal

THE Committee on Technical Aspects of Refuse Disposal of the Sanitary Engineering Division, American Society of Civil Engineers, presented an interesting report at the annual meeting in January. They showed that there are fourteen garbage reduction plants in operation today using municipal garbage and only one new one has been built recently, that at Philadelphia; while another one, at Indianapolis, was reconditioned in 1935. The report calls attention to the fact that there are between 650 and 750 incinerators in the United States and Canada at the present time operated by municipalities.

Twelve municipal incinerators were included in the first PWA program, and an equal number in the second program. Hog feeding was on the decline until about two years ago, when the increase in pork prices tended to check the trend.

The report also calls attention to the tendency in the early 1930's to abandon municipal collection and disposal services and arrange for contract services financed by municipalities. Continued interest in this direction seems to have lagged. The trend now is to change from contract back to municipal operation.

GAMEWELL Renders Amazing Emergency Service To FLOOD STRICKEN CITIES

Steadily rising waters of the Merrimac River engulfed the Haverhill, Mass., fire alarm central office for more than three days. Before the waters subsided, they reached a height of 6 feet, 3 inches in this room. Photographer snapped this view through a window while standing in a rowboat outside. Note desks and other material floating in the foreground with repeater and transmitter nearly submerged in the background.

FIRE ALARM SYSTEMS QUICKLY RESTORED TO OPERATING CONDITION

Before rampant waters had subsided in the various flood stricken cities and towns in the entire northeastern section of the country, the complete Gamewell organization, from field engineers to factory employees, had swung into action to help put fire alarm systems back into service.

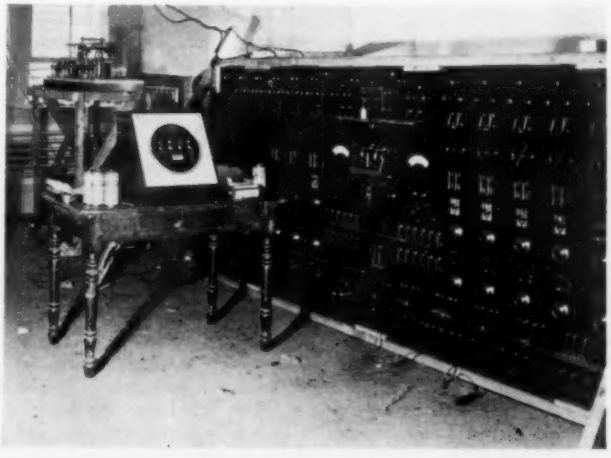
Telephones were out of commission for days in many districts and numerous fire alarm cables and boxes were under water. In one case, a complete central office was submerged.

Frantic calls for emergency fire alarm service, coming in from many sections, were promptly and efficiently handled. One of the first urgent calls came in from Pittsburgh for twenty-five new fire alarm boxes—fifteen were shipped that day and ten the day following.

At Haverhill, Mass., the fire alarm central office was completely submerged in water. Our engineers responded to a call for help, surveyed the situation, and finding the plight of the flooded city extremely bad, delivered to Haverhill *the very same day*, a complete 10-circuit, Class B fire alarm central office *without cost or obligation.*

To Johnstown, Pa., one of our service men was quickly dispatched with necessary repair parts and equipment. To Hartford, Conn., we delivered thirty-one new fire alarm boxes and miscellaneous repair parts within twenty-four hours after the emergency call was received.

Scores of other orders for emergency aid were also handled equally as well inside of a week's time—a remarkable demonstration of Gamewell's ability to give emergency service. Throughout the entire emergency period, Gamewell stood alone in rendering complete fire alarm service to its customers—something no other manufacturer in the field could supply. When buying fire alarm apparatus, every city and town should stop to consider if such emergency service as this will be available to them at some future date.



Emergency fire alarm central office loaned by Gamewell to City of Haverhill, Mass. This equipment was delivered to the stricken city within twelve hours after flood waters went down, leaving their own fire alarm headquarters completely ruined.

THE GAMEWELL CO.
NEWTON, MASSACHUSETTS

Public Safety

Off-Shift Equipped in South Orange, N. J.

By JOHN C. LOUGHRAN
Chief Engineer, Fire Department

THE Fire Department of South Orange, N. J., recently added a 65-foot service aerial truck, manufactured by the Seagrave Corporation, to its other equipment consisting of two 750-gallon pumping engines of 10 and 12 years of age

NEW 65-FOOT LADDER

respectively, a 500-gallon pumper seven years old, and a chief's car two years old.

The new truck is equipped with manual ladders, 12 to 50 feet, and the 65-foot all-steel tubular ladder raised by a hydraulic hoist. Besides the regular side equipment, it carries a steel box for a life-net on the rear of the frame, a 100-gallon booster tank and pump, and 250 feet of 1-inch hose. This is a one-man truck.

It is our policy to replace worn and antiquated apparatus as soon as possible. We have always had apparatus in reserve in case of a breakdown. Our off-shift is provided with equipment—a system which I have always favored.

Crime Lesson via Radio

THE Rochester Chamber of Commerce committee on crime prevention in cooperation with the Chamber's Young Men's Council and the Stromberg-Carlson radio stations, WHAM and WHEC, collected true crime stories, made them into five-minute playlets, and put them on the air, twice a week for a period of six weeks, under the title of "The March of Crime."

The first broadcast opened like this: "There have been 2,564 bank robberies and hold-ups in the United States during the past five years. They have cost many lives of bank employees and of customers. Here is the story of one such robbery: Three robbers, pulling masks over their faces, came into the bank just after it had opened one morning. Only two of the nine bank employees saw anything about the bandits by which these bandits could be identified."

Then came a dialogue between the two men who could identify the bandits. One of these clerks did not give the information he possessed; the other did. In the dialogue between them, the first protested that there was no reason why he should risk revenge by the bandits' friends by telling. The other answered, "It's because too many people look at it as you do that we have criminals. You are responsible. You'd let them get away with it to save your own hide. If everybody would tell what he knows, gunmen and racketeers and thieves would be wiped out."

Then came an appeal by the station announcers to the public to pass on to the police any information that would at any time help the police, stressing the fact that the person who knows something and who does not tell it is protecting the criminal instead of protecting his own family, his friends, and the public.

The broadcasts were drawn from actual happenings. Some showed how important it is that those who chance to see a crime should observe details; others dealt with clearheadedness at moments of excitement; and still others, like the first, were about the wisdom of telling those things that would help in conviction or those things that, known in time, might lead to the prevention of some outlawry. One of the broadcasts depicted a hold-up in a bake-shop in a foreign section of Rochester. This showed hysteria so cleverly that, were the whole thing not so serious, it might be taken for a comedy.

Every compliment is due those who handled the broadcasts—writers, actors, station employees. Everything was donated—even the costly station time.

EDWARD DICKINSON.

NEW SEAGRAVE 65-FOOT SERVICE AERIAL TRUCK, SOUTH ORANGE
Chief John C. Loughran and Director of Public Safety Eugene F. Krautter in foreground

NOW... an Improvement IN SEWER PIPE That Will Add Years To Its Life

Here's a fully coated section of *Asbestos Bonded* Armco Paved Invert Pipe. While developed especially to resist severe conditions, it is also recommended wherever a high degree of permanence is desirable in sewer or drainage installations.

Ten years of service has already proved the value of putting a *smooth* bituminous pavement in the bottom of corrugated metal pipe. Moreover, in practically all of the installations inspected, these pavements are giving complete protection to the underlying metal.

Nevertheless, Armco engineers have been constantly striving to improve this product, to make it serve your needs still better. And now, after many years of research, they have found the answer in an entirely new process, called *Asbestos Bonding*.

Here's what it is briefly. As the flat Armco Ingot Iron sheets emerge from the galvanizing rolls, asbestos felt is firmly embedded in the molten zinc coating. After the zinc hardens, the outer surface of these asbestos fibres is *completely* saturated with a special bituminous material. As a result, when the finished pipe is paved and coated in the usual way, there is a permanently tight bond between the bituminous coating and the pipe.

In addition, tests show that Asbestos Bonding actually widens the plastic range of the coating and pavement *as much as 50 per cent*. This provides an extra factor of safety, especially in storing and handling the pipe. Moreover, with these two improvements—enduring adhesion, plus a wider plastic range—it is obvious that the service life of the pipe will be greatly increased.

There's a new bulletin—just off the press—that tells you many of the things you will want to know about this modern pipe. Write for your free copy. Armco Culvert Manufacturers Association, Middletown, Ohio.

ASBESTOS BONDED
ARMCO PAVED INVERT PIPE

ARMCO

Please send me your free bulletin describing *ASBESTOS BONDED* Armco Paved Invert Pipe.

Name_____

Title_____

Address_____

City_____

AC-5.

Street Maintenance

Manhattan, Kans.

THE streets of Manhattan have been in good shape generally, considering the limited amount of labor and equipment with which we have had to work in the last year. The city maintains a day crew and a night crew. The night crew's main duty is to clean and maintain streets in which the traffic is heavy throughout the day. These streets, of course, are in the main business district. The day crew work is mostly in the residential districts, to take care of such emergencies as arise during working hours.

During June, 1935, we had a flood which submerged practically all the streets in the business part of town. During this emergency, relief labor was used in the street clean-up, but for regular maintenance no relief labor was used during the last year.

Our plans for 1936 are practically the same as in previous years. With very little increase in budget, our present force will probably not be increased. We intend to purchase a Mud Jack for pavement repair and also to install some shop equipment so that we may do part of our own shop repair work, whereas before we have had all of this work done in local shops.

H. F. HARPER,
City Engineer.

Lewiston, Idaho

OUR streets are always in good condition. We have very little maintenance on our pavement, and we have a portable asphalt plant for taking care of pavement breaks, cuts, and other repairs. This work is done with the regular forces, with the exception of drainage, leaf removal, etc., which has been done by relief labor for the last two years. We have no definite plans for 1936 in the way of improvements. We are, however, contemplating oiling the remainder of about 7 miles of rock macadam streets, which when completed will make our city dustless. There are 56.73 miles of streets in Lewiston, 12.25 of which are paved, 1.50 miles of intermediate type, and 23.19 miles of gravel and dirt streets, and the rest dirt and uncompleted. We also have 2.89 miles of oil-mix pavement on arterial highways within the city limits.

W. P. HUGHES,
City Engineer.

Bisbee, Ariz.

OUR streets are always in very good condition. The city of Bisbee is situated on the sides of two main canyons, Tombstone Canyon and Brewery Gulch, with the two main streets at the bottom of these canyons. These two streets were paved with concrete in 1919 and have required no maintenance except filling the joints with Tarvia. In 1929 the more important side streets leading up the hillsides from the two main streets were paved with a 4-inch penetration Bitumuls. The streets paved are steep, some attaining a grade of 25 per cent, and one a grade of 33 per cent. These have held up remarkably well and have required no maintenance. The rest of the streets on the hillside are of dirt and gravel. The heavy summer floods wash them out and they are immediately repaired with fine crushed rock and muck from one of the mines. This muck and rock is limestone and makes a good roadbed. During the past year this repair work has been by relief labor, for only a skeleton street force has been kept by the city. The Works Progress Administration for Arizona has approved the city's program for the paving of all unpaved streets in the city, and the project has been started with the use of hand labor in preliminary grading. The materials, principally about 96,000 gallons of Bitumuls LX, have arrived and work is under way. The city of Bisbee is furnishing the crushed rock from one of the mine dumps, using its own crusher.

RALPH L. MOTZ,
City Engineer.

Marysville, Kans.

OUR pavement is a brick surface with a fairly heavy concrete base. Maintenance on this pavement has been low; however, we have had to re-lay small sections of brick where the surface has buckled owing to expansion. We have also run about 5,000 linear feet of curb and gutter which was broken badly by expansion of the pavement and sidewalks. Most of our street work has been grading and gravel surface on side streets, which we have been carrying on as relief projects, using from five to twenty relief men. The city has furnished from two to five men on these projects, two trucks and a Caterpillar Ten tractor.

Our plans for 1936 are to go ahead with practically the same program as outlined above.

B. T. STRYKER,
City Engineer.

Cloquet, Minn.

OUR streets have been kept in good condition, all the work being done by the regular crew. No relief labor is used on any city work. We use sand, gravel, cement, tar and cut-back asphalt for repairs, and our equipment includes an oil distributor, a sand spreader, a small concrete mixer, a gravel screening and crushing plant, three 1½-ton dump-trucks, two small crawler tractors, and a motor patrol grader.

ARCHIE CAMPBELL,
Street Commissioner.

Berwick, Pa.

OUR streets are generally in good condition. We keep them so by using from 7,000 to 10,000 gallons of Tarvia per year and covering with fine stone. We have our own pressure distributor. The maintenance is done by regular forces trained to the work. No relief labor is used on this work; however, we have used much of such labor on new grading.

Work is now under way on 6,700 feet of 18-foot concrete paving. We plan to continue the Tarvia maintenance in 1936 and do some concrete paving.

BOYD TRESCOTT,
Borough Engineer.

Jackson, Tenn.

OUR streets are well above the average condition. Maintenance consists chiefly of re-treatment of surface-treated streets, which is done by contract. Some years we have practically none. Minor street patching is done with Amiesite used as a cold patch material, at a very low cost, by our regular maintenance force.

In 1933 some CWA labor was used for ditching and sewer work, totaling about $3,000.

Street maintenance will be very light in 1936, not over $5,000 for the year, on some 45 miles of streets, which cost several million dollars.

E. R. DIKE,
City Engineer.

Centralia, Ill.

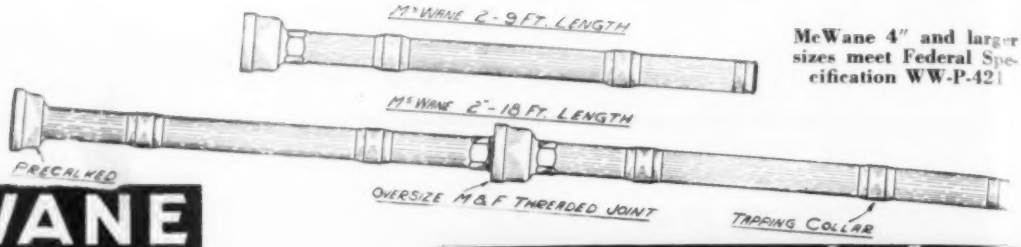
WE feel that our secondary streets are in good condition. These streets were built up by applying a course of broken brick stone or concrete refuse and covering with cinders. We have found this method to be the most practical solution of the secondary street problem. There is usually enough cinder and ash accumulation to take care of holes and rough places as they occur, and labor is the only item of expense for maintenance after a street has been properly constructed in this manner.

In recent years coal-mine refuse consisting of slate, refuse coal and rock has been used as a foundation course and all give equally good results. In fact, the roads of our entire township have been built up with this material, until we now have all-weather roads to nearly every farmhouse in Centralia Township.

Maintenance work has been done by the regular forces which, augmented by an average of 25 relief laborers, has enabled us to apply this form of improvement to nearly all dirt streets within the city limits.

In 1936 we hope to re-lay about one mile of our brick pavement.

H. B. STOVER,
City Engineer and Superintendent of Streets.



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speeds up installation . . . fifty per cent fewer joints in the line . . . less friction . . . at no extra cost.

In assembling these 18-ft. lengths, McWane uses the oversize Male and Female Threaded Intermediate joint because it is the *only* joint that is as strong as the pipe itself.

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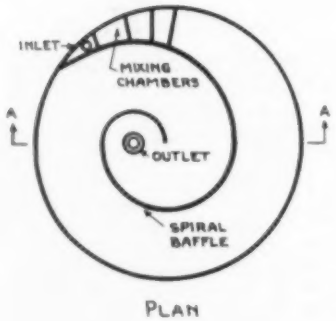
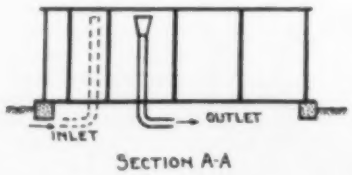


PLAN



SECTION A-A

Spiral Baffle Steel Sedimentation Basins

Even flow — wth no short circuits possible — is essential — in the sedimentation basin of a continuous type water treating plant.

Note the even flow obtained in a spiral baffle steel sedimentation tank. Note, also, how conveniently the mixing chambers are fitted into the start of the spiral.

We have available, design and layout data on this type of structure, which we shall be glad to send you. Or, if you wish, we will make the layout for you. Write our nearest office.

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MAY, 1936

Vol. LI, No. 5

The American City

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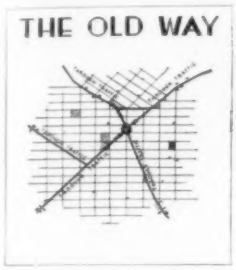


The Greenbelt Towns:

What and Why

By ALBERT MAYER

WHAT are the Greenbelt Towns, and why is the Resettlement Administration building them? What facts and principles guided their location and their planning? These questions can be answered in general terms and by specific reference to maps, graphs, regional and town plans.

The four Greenbelt Towns now being built—Berwyn near Washington, Greenbrook in New Jersey, Greenhills near Cincinnati, and Greendale near Milwaukee—are based on the same needs and the same principles that produced the English Garden Cities of Letchworth, Welwyn and others. They are a reply to the very old but daily more pressing problems of city and country, of urban worker and farmer.

On the one hand we have the accumulated difficulties of the large city, which have become magnified and accelerated since the sudden influx of low-wage workers beginning with the Industrial Revolution, and paralleled here by waves of immigration and movement from rural districts into the cities. The city as we know it is a sprawling, haphazard growth; any major efforts to rectify it are of necessity rarely, and then only partially, successful because of multiple ownerships, high land costs; because of existing street patterns, utilities, franchises. The rapid growth of suburbs was a protest against the aggravations of the city. But owing to planlessness, to land speculation, to the habit of locating on main roads, the suburb is often as confused as the city, has developed its own slums, its own auto dumps, its own traffic hazards; and it has likewise reached out into and poisoned much of the surrounding country with its service stations and hot dog stands.

The economic and social difficulties of the farmer are of course even more ancient and chronic than the city's difficulties. On the economic side he gets little for his produce, and the consumer eventually pays a high price for it after transportation and middlemen's profits have been added. Socially and culturally he is relatively isolated, though the advent of automobile and radio have ameliorated this situation.

These are the basic facts, to which must be added the arrival of the motor truck, and the age of power transmission. Neither industries nor people need be in the heart of cities any more, nor with cheap power need industries be near sources of fuel. They are better located near their markets. By motor truck they can distribute their product expeditiously and flexibly. The motor car, which on the one hand has made city life even more hazardous than before, on the other enhances the quality of life away from the large city.

For Rational Decentralization

The Greenbelt Town offers a solution of the problems outlined, and is based on the discernible trend of decentralization. For, as is well known, decentralization in this country is not taking the form of dotting industries and communities all over the country, but is occurring within the peripheries of metropolitan areas. The central districts of cities lose population, but the total population of the metropolitan areas gains consistently. The Greenbelt Town locates far enough from the city itself so that it has an independent life—it is a definite community, not a bedroom suburb—but near enough to take advantage of the major cultural opportunities of the city, its opera, its museums, its concerts. It is located carefully with respect to present industrial employment and future industrial trends, so that it preserves the free labor market of the city, and hence is *not* a subsistence homestead affair. *It is built with a planned limit of size.* Hence, roads and utilities are laid out sensibly in accordance with known requirements, without the later patchy and excessively costly changes and enlargements that must be made in ordinary city operations. It is zoned for use and for population density from the start, on a basis of openness and rationality that is impossible in a city with its large vested interests in high land prices.

Its limit of growth is definitely fixed by the greenbelt which surrounds the town proper. The greenbelt is a permanently open belt of woods, meadows and farms. Physically, it serves to restrict the ultimate growth of the town, and to restrict other towns or independent speculators from spoiling the character of the new town. It is not a financial burden on the community, for it is occupied by farmers who are economically better off because they can sell most of their produce in a definite local market. The worker in the town is better off financially because he can buy the farmers' products more cheaply. He

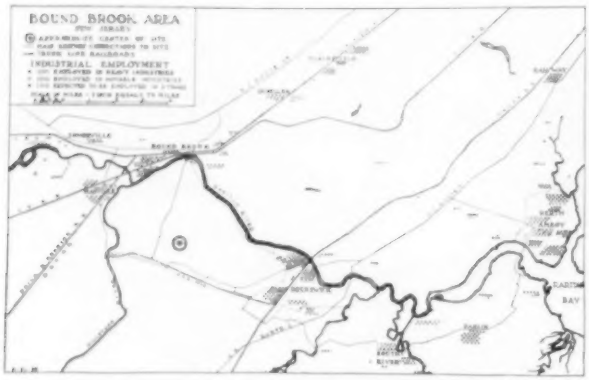


FIGURE 1.—THE GREENBROOK PROJECT'S RELATION TO SURROUNDING INDUSTRIAL CENTERS

regains contact with the soil, both directly by means of his own garden and the allotment gardens, and by contact with the farmers themselves.

With these principles in mind, the Resettlement Administration (through its Suburban Resettlement Division) started out with a program of four satellite towns to be built. It checked up on the hundred metropolitan areas that had shown population increases. It plotted up their industrial employment records over a large number of years in graph form, comparing each with the average of all. Having by these means chosen certain metropolitan areas, of which the New York—Newark area was one, the next question was the choice of a site.

Five Requirements

The first requirement is a site close to industrial employment present and future (until the new town acquires industries of its own). Figure 1 shows the Greenbrook project's relation to surrounding centers of industry. Another study showed the travel times to these centers: fifteen minutes travel time to 18,000 jobs; thirty-five minutes to 50,000 jobs.

A second requirement is good transportation by railroad and highway. Main highways should be near for convenience both of inhabitants and of industry, but should not run through the town, for that means traffic hazard. Figure 2 shows all the main highways close at hand—to New York, to Newark, to Trenton, to Philadelphia—but none passing through the town. It likewise shows the main lines of the B. & O., Lehigh Valley and Pennsylvania Railroads all near the site, the Pennsylvania actually having a spur into the property. We have naturally located our industrial area at that point. By either road or train, the site is not over an hour to any of these cities.

A third requirement is availability of unspoiled land in sufficiently large quantity—in this case some 4,000 acres. Here is where the Greenbelt Town scores heavily against the city. Land costs only a fraction of city prices, even when improvements are added. Being in much larger ownerships, it is easier to obtain. Being relatively undeveloped, economical street layouts can be achieved, much larger blocks used because intensity of traffic is less. This means less area and less cost of paving, also the advantage of large interior open spaces and parks in each block. This can be clearly seen from the bird's-eye view of Greenbrook on page 61. The smallest block is about 15 acres.

A fourth requirement is topography that is pleasant for living, and that lends itself to economical sewering. By close cooperation between the planning staff and the land acquisition department, it was possible to choose a location so that practically the whole town, present and future, can be sewered into one outlet—the Raritan River—without pumping, in spite of the rather flat terrain.

Finally, the land must be suitable for farming, because that is an essential requisite for the greenbelt. The Greenbrook area is good dairy-farming and fruit-growing country.

As indicated, these varying requirements were met in the selection of the Greenbrook site. And it is a commentary on the too-common system of haphazard exploitation that it is one of few such areas in the whole metropolitan district to meet all such requirements.

The Plan of Greenbrook

The planning problem in the case of Greenbrook was a dual one: a town to be built immediately for some 3,000 inhabitants; and an ultimate town of maximum size of about 20,000. The physical relation of the two can be seen on Figure 2, the black portion showing the immediate town and the hatched portion the ultimate town. It will be seen that the town has been so located that it avoids even the local minor traffic roads, such as Elizabeth Avenue and Amwell Road. Thus again, the town's inhabitants have easy access to the road system, but they are not harrassed by foreign traffic through the town.

The bird's-eye view (Figure 3) shows mainly the first town with its surrounding grouping of farms. It will be seen that the blocks are laid out so as to get maximum advantage of existing woods for the interior block parks. The street layout and house groupings combine the cul de sac method, and the peripheral method of houses along public streets. The adoption of cul de sacs permits developments of larger self-contained blocks, and has inherent economies such as that much smaller width can be paved and a lighter concrete used than on a street with through traffic. (See Figure 4.) The typical cul de sac

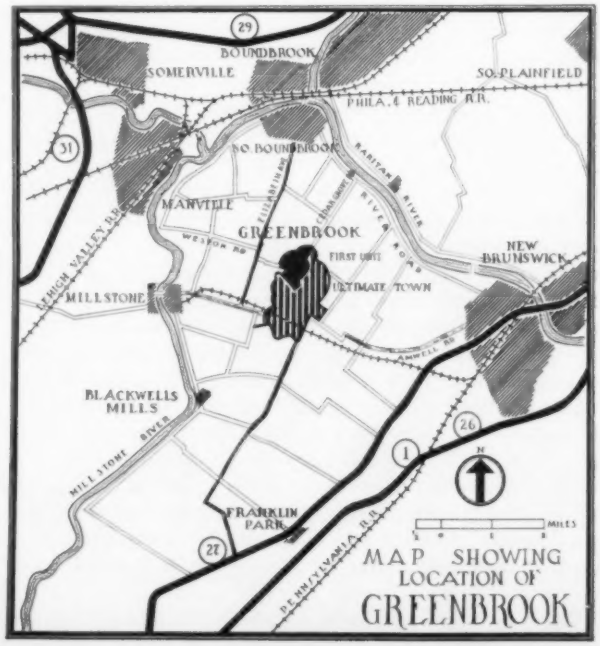


FIGURE 2.—BY EITHER ROAD OR TRAIN, GREENBROOK IS NOT MORE THAN AN HOUR DISTANT FROM ANY OF THE CITIES ON THIS MAP

FIGURE 3.—THE "IMMEDIATE TOWN" ON THE GREENBROOK SITE
Outer blocks less intensively developed than central blocks. Residential density for entire development, about 6 houses per acre

width is 18 feet, the smallest road width is 24 feet. The large center block is an almost 100 per cent cul de sac treatment. The outer blocks are necessarily smaller, for cul de sacs can generally run one way only. This is for reasons of economy in sewering. Obviously, the cul de sac sewer should run down into the street sewer so as to avoid excessive cut. The large center block has a knoll in its center, sloping down in all directions—hence cul de sacs were developed in all directions from it.

In laying out the town and determining its main interior roads, the question of location of schools played an important part. Their locations had to be studied both with a view to avoiding excessive walking distance for any pupil, and attempting to avoid the necessity for any pupil to cross a main traffic street to reach a school. How this problem was worked out for the ultimate as well as the immediate town cannot be shown, because the final definite study of this is just being completed.

The dual problem of immediate and of ultimate town provided a knotty problem in connection with the business and town center. The question was whether to build a business group for the first town, which would later become a neighborhood business center when the ultimate town center was finally completed. But the arguments against this are that such a center would delay the eventual town center, because the established stores would tend to discourage new ones in a new location; also that when the new center finally did get established, its superior concentration of stores might eventually put the neighborhood centers out of business. The final solution adopted was to locate the ultimate center sufficiently convenient to the present town so that a part of it could be developed now, and could later be naturally expanded as required by the town's growth.

Further Studies Needed

A few typical problems have been noted among the myriad that arise in such an undertaking. Detailed studies must be made of all sorts of alternative methods: of electric distribution, of house orientation and groupings; of the first cost and maintenance economy of materials; of local habits and customs and prejudices; of the income of families that are expected to live here; of the number of children and their age and sex distribution—for this affects both the house sizes and the school requirements; of the percentage of families that have automobiles now and of the percentage that may be expected to have them when times improve; of whether houses should have cellars or not, and of whether laundries should be there or on the ground floor. All these questions must be adequately studied and solved, so that the inherently splendid principles underlying the Greenbelt Town will not be interfered with by any avoidable lapse in execution.

The inherent principles underlying these undertakings are essentially so sound, their economies so palpable, the method of life so much pleasanter, and its physical permanence so definitely assured, in contrast with the helter-skelter methods of the essentially small-scale production of housing, that when properly executed they cannot but influence the public into demanding, and the building industry into supplying, homes and environments really fitting for our citizens. They have the right to orderly communities suited to the requirements of our time, and not weighted down with the illogicalities of other generations. So much can be accomplished, such a great opportunity for the country's future is offered, that it fills with humility all of us who are working it out, but it also fills one with eagerness to see that these towns shall be all that we claim for them.

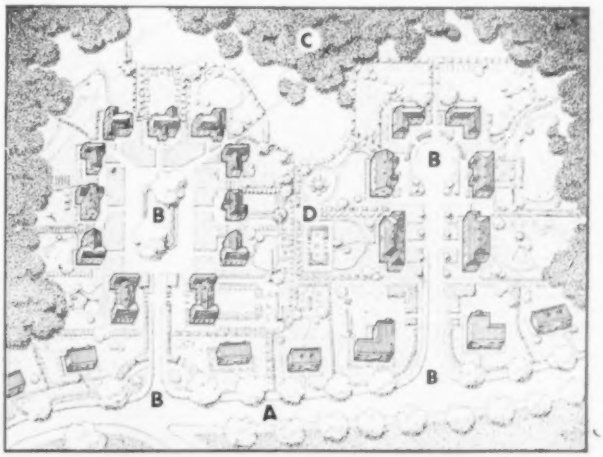


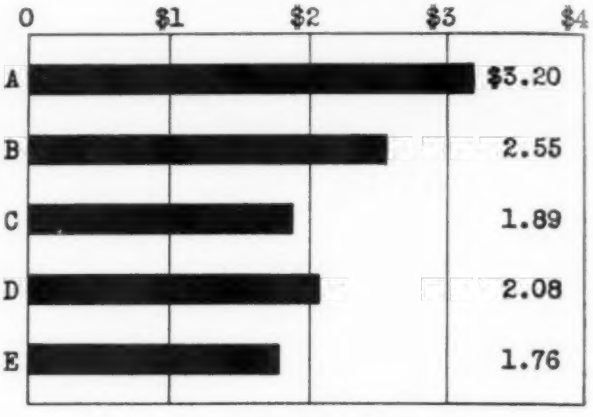
FIGURE 4.—TYPICAL CUL DE SACS
A—Main road. B—Cul de sac. C—Block park. D—Private gardens

Maintenance Costs for Streets and Roads in Pennsylvania Townships

THE maintenance of highways and streets by first-class townships in Pennsylvania in 1934, in the 50 townships for which data are available, cost nearly $1,000,000, or $2.45 per capita. This is an increase of 2 cents per capita over the cost for the same group in 1933. Actually, in 26 of these townships the expenditures increased, while in 23 they decreased. One township showed no change . (Data from Pennsylvania Economic Council.)

The cost of highway and street maintenance in first-class townships varies greatly. The largest expenditure in 1934 was equivalent to $5.28 per capita; the smallest, $0.31. There is a noticeable tendency for the expenditures of the individual townships to diminish with the population, but this tendency is blurred somewhat by individual instances of expenditures relatively high or low.

Many costs in first-class townships are subject to wide variations, which apparently are due to the proximity of these townships to metropolitan centers. Possibly even more so than with other units, therefore, the expenditures of first-class townships should not be compared without careful reference to the character of the township. Variation may also be due to the lack of a generally accepted formula that clearly distinguishes between permanent improvement and maintenance expenditures, with the result that what one unit charges to maintenance, another considers capital outlay, and vice versa. Also, a unit might classify as maintenance some expenditures that other units would charge to other accounts, such as the street-cleaning and storm-sewers accounts. Below are the expenditures for each group, expressed in dollars per capita.



POPULATION GROUPS
A—20,000 to 50,000; B—10,000 to 20,000; C—5,000 to 10,000; D—2,500 to 5,000; E—Less than 2,500.

Expenditures for Maintenance of Highways and Streets in First-Class Townships—1934
(Data for 51 Townships)

Per-Capita Expenditures in Dollars

			Incr.	Decr.
Upper Darby		$2.85	—	—
Lower Merion	Group A	3.77	$0.19	—
Haverford		3.04	—	$0.27
Abington		2.68	—	.91
Plains		1.14	—	.08
Cheltenham		5.28	.02	—
Mt. Lebanon		2.90	—	.61
Stowe	Group B	1.08	.02	—
Penn		2.75	—	.27
Harrison		1.39	—	.51
Radnor		3.57	—	.07
Newport		1.80	—	.12
Shaler		2.61	.90	—
South Fayette		.99	.08	—
Butler		1.91	.39	—
Ross		1.70	.45	—
Ridley		2.23	.62	—
Mifflin		.96	—	.13
Elizabeth		1.64	.66	—
Wilkes-Barre	Group C	1.60	—	.35
Baldwin		1.41	.28	—
Swatara		1.61	.46	—
Scott		2.85	1.07	—
Collier		1.58	.21	—
East Bethlehem		2.02	.97	—
Springfield		3.01	—	.11
O'Hara		3.09	.22	—
Spring Garden		4.56	1.06	—
Plymouth		1.61	—	.12
Jefferson		2.18	.46	—
Wilkins		.99	—	.15
Upper Moreland		2.52	.69	—
East Deer		1.56	—	1.22
Tinicum	Group D	2.06	—	.06
L. Chichester		.57	—	.10
Lawrence Park		2.59	.92	—
Reserve		2.02	.27	—
Lackawanna		.51	—	.58
Annville		1.94	—	.51
Nether Provid.		4.99	.97	—
Aston		.91	.14	—
West Pottsgrove		1.59	—	2.24
Rochester		1.64	.56	—
Braddock		1.00	—	.39
Springdale		.89	.49	—
Saville	Group E	3.62	1.43	—
Leet		.97	—	.55
Crescent		4.12	.54	—
White		.79	—	.75
West Lebanon		1.72	—	1.04

High Gasoline Tax Rates Reduce Revenue, Hurt Trade

EXCESSIVE gasoline tax rates appear to be a definite barrier to increased sales of motor vehicles and consumption of motor fuel, and indirectly curtail both state revenues and business income, it is revealed in statistical analyses made by the American Petroleum Industries Committee.

It was found that in eight states with excessive gasoline tax rates, 1935 sales of new motor vehicles increased only 22.4 per cent over those of 1934, as compared with an increase of 44.5 per cent in the other states and a nation-wide increase of 42 per cent. A study of motor-fuel consumption over the 10-year period 1925-1934 disclosed that while consumption per vehicle increased 31.1 per cent in a comparable group of states with reasonable gasoline tax rates, the increase was only 22.4 per cent in the eight states with excessive tax rates.

New car sales in the eight high-tax states totaled 326,939 in 1935, or 59,267 vehicles less than would have been sold had these states enjoyed the same percentage increase as did others. Estimating the value of the average new vehicle at $800 delivered, the automotive trade in these states lost approximately $47,500,000 worth of new business. Additional losses were sustained in industries catering to motor transportation, with total losses to business and to state treasuries estimated in excess of $50,000,00.

Toal consumption of gasoline in the eight high-tax states in 1934 is estimated at 1,491,185,000 gallons, as compared with 1,600,000,000 gallons which would have been consumed had the states enjoyed the same percentage gain as states with reasonable tax rates. It is estimated that gasoline retailers in the eight high-tax states suffered a loss of approximately $15,000,000 worth of business in 1934, or enough to have provided jobs for 5,250 adidtional workers. According to U. S. Bureau of Census reports, gasoline retailers in these states did a total business of $129,662,000 in 1933 and employed approximately 45,000 workers, or 350 for each $1,000,000 worth of business.

Primary Settling, Separate Digestion, Feature Walden Sewage Works

Dry Seal Gas Holder and Venturi Flumes Used

IN January, 1935, sewage was first admitted to the new sewage works at Walden, N. Y., a community of 4,300 population (1930 census) about 11 miles west of Newburgh, N. Y. The present works consist of two sewage pumping stations, a siphon force main, and the settling tanks and separate sludge digestion and sludge drying units. The effluent discharges into the Wallkill River.

Sewage Pumping Station

The village is located in two watersheds flowing to Tin Brook and the Wallkill. All sewage from the Tin Brook watershed is pumped to the sewage works through a siphoned force main. A smaller pumping station serves a portion of the Wallkill watershed.

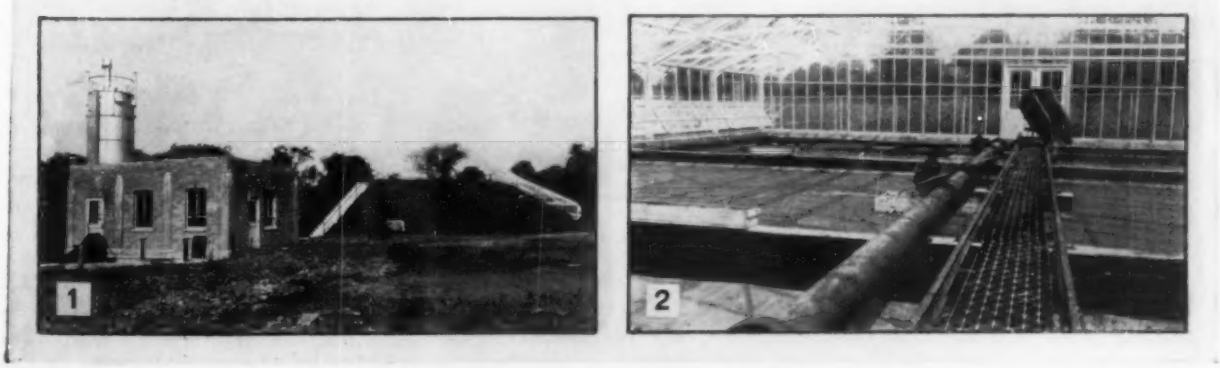
The Wallkill or west side pumping station, which is entirely below ground level, handles about one-half the sewage of that section, or approximately one-quarter of the total flow. The remainder of the west side sewage flows by gravity to the plant. The equipment in this pumping station consists of two Ames centrifugal pumps of 300 gpm capacity each located in a cylindrical dry well adjacent to a similar wet well where the hand-cleaned screen is located. Condensed moisture on the walls and pipes created a hazard because of possible electrical short-circuiting. This has been overcome by the installation of a ventilating fan. The pumps are float-controlled through a mercoid switch and, to prevent back flow after the pumps are shut off, a Ross Operating Valve Co. device opens and closes Golden-Anderson rotary plug-valves by a solenoid-controlled pair of hydraulic ports. Discharge to the gravity sewer 25 feet above is through an 8-inch cast iron line.

During the spring flood in Walden, there was 3 feet of water over the top of the Pine Street or West Side pumping station. Only a small amount of water entered the pumping station through the top manhole cover, which is fairly tight fitting. The total depth of water found in the bottom of the station when the flood subsided was only 2 or 3 inches, and none of the electrical equipment was damaged. Apparently the pumps had functioned as usual during the entire flood.

The easterly or Tin Brook watershed pump house is built of yellow brick with a tile roof and copper gutter and leaders. It is located just below and close by a main highway. Sewage enters the pump house through a screen, which is cleaned once a day. Screenings from both pump houses are loaded in cans and hauled to the sewage-treatment plant for disposal. The pumping equipment consists of two American Well Works centrifugal pumps with the same size casings but with different size impellers. The combined capacity of the pumps is 650 gpm against a maximum head of 42 feet in the 8-inch cast iron line direct to the sewage works. When the line operates as a siphon, the head is reduced to 17 feet. The pumps are started automatically by floats through a mercoid control, and a Sundh Electric Co. device alternates the operation of the pumps. A self-closing check-valve made by the Lake Erie Engineering Corporation, Buffalo, N. Y., is installed on the discharge line and is equipped with a dash-pot so that the check-valve closes slowly to eliminate water-hammer when the pumps are shut off. The pumps are operated on a 220-volt line. A vacuum pump installed at the crest of the force main to insure its operation as a siphon is used very infrequently, since the line seems to clear itself of any air pockets. This siphonic effect has permitted capacities as high as 1,000 to 1,100 gallons per minute to be pumped from this station to the sewage-treatment plant.

Measuring-Flume and Screens

The sewage is all domestic except for a small quantity of industrial waste from a silk mill and a felt factory. Sewage from the easterly end of town enters the plant



SCENES AT THE WALDEN, N. Y., SEWAGE-TREATMENT PLANT
1. At left, the sludge scraper, then the gas holder rising behind the control building, and at the right the digester and the glass-covered sludge drying beds. 2. Interior of the sludge beds

through a 15-inch pipe, through which the flow is intermittent, depending on the operation of the pumps. Sewage from the west side enters through an 18-inch gravity line. A venturi flume with a 9-inch throat measures the discharge of the easterly line, the flow being recorded on a Bailey meter 70 feet away in the operating building. The two influent lines directly oppose each other, but well-designed concrete work with easy curves furnishes a smooth flow into the pair of grit chambers through which the flow is controlled by sluice-gates. Grit is removed by flushing through a plate valve in the floor of each chamber, the discharge being to the sludge pumps which pump it to the sludge drying beds. The grit chambers are each 12 feet long, one being 2 feet wide and the other 1½ feet wide.

Sewage flows through an 18-inch pipe to a Jeffrey automatically cleaned bar screen with 1¼-inch openings located within the control building. The mechanical rake is set to operate automatically once an hour delivering the screenings to a tray for drainage. Screenings from the two pump houses are dumped on this tray and then are raked forward into a Jeffrey grinder operated by a 25-horsepower motor. The shredded screenings are discharged into a small chamber, which also receives the scum from the sedimentation tank. After chlorination the accumulation is pumped to the sludge digester. About 30 pounds of screenings are removed each 24 hours from a flow of 250,000 gallons.

Sedimentation

The sewage from the screens flows through a collecting channel with a depth of about 12 inches. A by-pass line from this channel permits discharge of the sewage direct to the creek. Chlorine is applied to the sewage just ahead of the by-pass gate, thus insuring chlorination whether the sewage is settled or by-passed. A residual of about 0.5 ppm of chlorine is maintained.

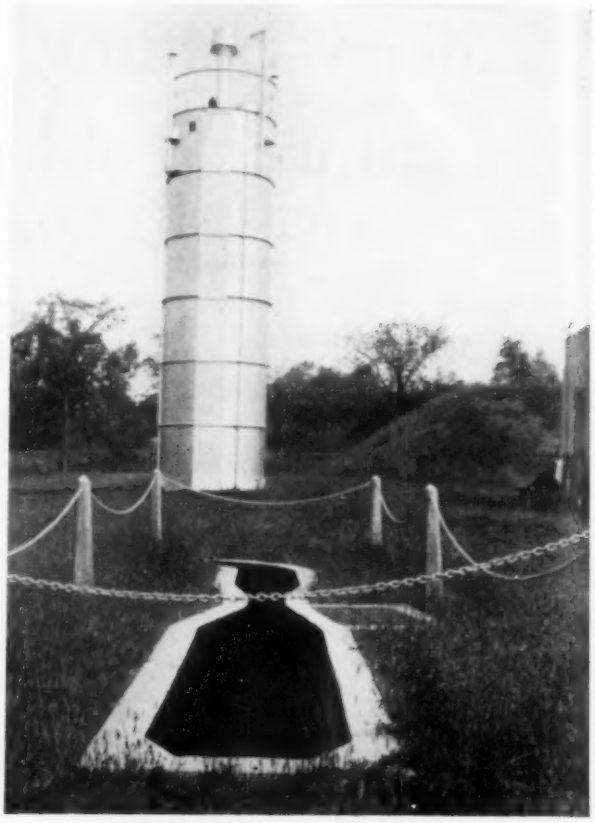
The settling tank, which is 60 feet long and 14 feet deep with a 2-foot freeboard, provides about two hours' detention. A Jeffrey longitudinal scraper, which is operated for one-half hour in the morning and a similar period in the afternoon, moves the sludge to a hopper next the operating building and carries the scum to a trough at the far end. The scum is flushed out by opening a valve, permitting it to run to the scum well.

Final Measurement of Effluent

The effluent from the settling tank flows over a weir the full width of the tank and through a bell-mouth pipe to another venturi flume with a 12-inch throat, which registers the total flow through the plant on a Bailey meter in the control house and to which the automatic control for the chlorinator is attached. By subtracting the flow recorded by the venturi flume on the easterly influent line from the total flow, a record of the amount of sewage delivered by the westerly line is computed.

Chlorine Room

The chlorine room adjacent to the screen contains two Wallace & Tiernan vacuum type chlorinators, one for automatic operation and the other for manual operation, with the scales for weighing the Mathieson chlorine cylinders located between the two machines. Warm water is supplied to the chlorinators in cold weather, and there is a plug for an auxiliary electric heater if needed.



THE GAS HOLDER AND THE EFFLUENT MEASURING-FLUME AT THE WALDEN WORKS

Sludge Pumps

A pair of Rex plunger-type sludge pumps are installed in the basement of the operating building and are driven by 5- and 2½-horsepower General Electric motors at two speeds giving capacities varying from 75 to 250 gpm. A feature of the plant is the 37 valves on the pump lines, permitting pumping with the sludge pumps to or from and between any points in the plant.

Lime for treating the sludge was supplied by a Wallace & Tiernan dry-feed machine delivering to a solution box with a float feed. The lime was applied at the suction side of the pump by an injector to maintain a pH above 6.4, which seems to be the normal value for this digesting sludge. No trouble from foaming has been experienced. Shortly after the first of the year Nuchar was introduced into the sludge in place of lime. In a period of a month, the pH was raised from 6.4 to over 7.0, and at the present time the pH of the sludge varies from 7.4 to 7.6.

Also located in the basement of the operating building, starting from the foot of the stairs and proceeding to the right, are a PFT flame trap, an Emco sewage gas meter, an Ideal gas boiler furnished by the American Gas Products Co. for heating the water for the digester coil, using sewage gas, and a Gamon Watch Dog meter for measuring the flow of hot water from a small Worthington centrifugal pump which provides a positive flow of water through the digester. Up to October 3 there had not been sufficient sewage gas produced since the plant started to

permit the use of gas for heating water for the digester, and as no other method has been provided for heating the water, the digester has operated without external heat. A pair of Bristol recording thermometers are attached to the feed and return lines of the digester coil, with the recording charts in the office-laboratory on the ground floor. A Thatcher hot air furnace burning coal provides heat for the operating building and also heats water for the laboratory. A tap has been installed to furnish hot water to the solution feed chlorinators when needed. Gas will be used to heat this water as soon as gas is available in sufficient quantity.

Electrical Control Equipment

An exhaust fan in the basement, controlled both from the basement and from the main panel board on the first floor, is installed to remove any gases which may accumulate in the basement. Dual control is featured throughout the plant. Every piece of equipment may be started or stopped by a push-button switch located near the equipment itself, but always inside the operating building, and all machines are also controlled from the main switchboard furnished by the Sundh Electric Co. Every motor has an overload element for protection.

Four 1,000-watt floodlights are installed on the corners of the operating building, illuminating the entire ground area of the plant. There are also separate floodlights on the digester and in the glass-covered sludge beds.

The control building also houses a lavatory with toilet and shower, and a laboratory-office, and the screen, switchboard and chlorinator room, as well as the equipment in the basement. Tests of the influent and effluent with Imhoff cones show an average of 8 cubic centimeters of sludge in the raw sewage and 0 in the effluent. Only six times since the plant started has there been any reading whatsoever for the effluent on the Imhoff cones.

Digester and Gas Holder

The digester is a concrete tank 30 feet in diameter and 21 feet deep, almost entirely above ground and protected on the sides by a sloping earth fill. There are three draw-offs at different levels for the supernatant liquor, which is discharged into the influent channel, between the grit chamber and screens. There are also three gates, permitting the drawing-out of sludge at three levels, the flow being direct to the sludge beds.

The sludge beds consist of three 1,000-foot sand beds with Metro Tile block underdrains, with rails and a grating walk carried through the center of the building, all enclosed in a Hitchings glass cover. A tip car is run on the rails and out to a loading pit for the disposal of the sludge. The outlet valves for the sludge are Nordstrom quarter-turn plug-valves.

Sludge drying has been very satisfactory. Sludge to a depth of 12 inches wet has dried down to a thick, easily handled, dry sludge in less than a month and at no time has interfered with the operation of the plant by requiring additional time for drying.

Up to the time the plant was visited, October 3, sludge had been drawn only twice. It was not completely digested, and produced some objectionable odor when broken, but this dissipated readily, causing no nuisance in the neighborhood. The drawing of sludge had a beneficial effect on gas production.

Since October, 1935, there has been a considerable volume of sludge gas developed. It has run as high as 20,000 cubic feet per day and has averaged over 15,000 most of the time. During the latter part of March, 1936, the volume of gas varied between 10,000 and 15,000 cubic feet per day. It is believed that the decrease in gas production is a normal procedure and that production will probably stabilize at around 1½ cubic feet per person per day, which will be about 7,000 to 10,000 cubic feet.

Gas Holder

An aluminum-painted gas holder of 2,000 cubic feet capacity is installed near the digester and control building. This tank, furnished by Stacey Brothers Gas Construction Co., of Cincinnati, Ohio, has no float, but works with a plunger which has springs to force the packing against the shell to make the seal. A gas pump set at the base of the tank is adjusted to operate when there is 4 inches pressure in the digester. When the digester pressure reaches atmospheric pressure, the pump is automatically stopped.

The dry seal gas holder operated very satisfactorily during the winter and there was no trouble with freezing in the tank. During very cold weather one of the connecting pipe lines froze, owing to condensation, but there was no freezing in the tank itself.

This PWA project 3724 was designed jointly by George C. Diehl, Inc., Buffalo, N. Y., and Nussbaumer & Clarke, Inc., Buffalo, N. Y. Relief labor was used on the project with great success under the direction of James DeBardinis as foreman. The concrete and brick work throughout attest the care taken. Z. B. Phelps, Jr., was Resident Engineer during construction for Nussbaumer & Clarke, Inc., and Maxwell Gold was Resident Engineer Inspector for PWA. The plant is operated by the Department of Public Works of Walden, Richard Baird, Superintendent, with M. F. Rauner as operator. The project cost $280,000, of which $80,000 was a PWA grant.

The Essentiality of Recreation

IN an interesting and impelling address at the Conference on Outdoor Recreation, held at Amherst, Mass., on March 13, Miss Elisabeth M. Herlihy, Chairman of the Massachusetts State Planning Board, showed what help the state can offer to town and rural community leaders and to city leaders. Her closing words gave an earnest tribute to the importance of recreation in solving social problems:

"When the difficulties and the hardships of the last few years shall have become history, I wonder if there will not be recorded on the credit side of the ledger, as one of the fruits of adversity, the very real progress that has been made in the recreation field. It is no longer looked upon as something to kill time; it is looked upon as something to build character, something almost as essential as food, clothing and shelter, which we have been taught to regard as the necessities of life. A well-conceived, well-developed, and well-enforced recreation program holds the key to a solution of some of our biggest social problems of the present-day and age. Unemployment forced the problem out into the full daylight of public consciousness, and out of the emergency measures adopted and the programs designed to bring about a profitable, constructive use of leisure time, there has been developed a permanent and prominent place in our civil life today for all forms of recreational activity.

"Conditions in the recreation field today are a distinct challenge to the recreation workers and to the planners, as well as to the social workers and the health workers. The public is receptive as never before."

Birmingham's Industrial Water Supply

Joint PWA-WPA Project Expected to Stimulate Growth of District

THE most ambitious construction project in Alabama, a joint PWA-WPA undertaking, is the new $6,000,000 industrial water system, work on which began in February, 1936. The Works Progress Administration allotted $2,300,000 towards the project, and the balance of the necessary funds was made available by the Public Works Administration through a loan secured by revenue bonds of the city of Birmingham. The loan will be amortized by receipts from the sale of water to industrial users.

An adequate industrial water supply has long been one of the needs of Birmingham. Back in 1929 it was planned to finance such a system with private capital, but the depression interrupted and then definitely terminated these plans. Birmingham lies in a narrow valley through which flows one small stream, inadequate for the immense amount of water consumed by heavy industries. The city has an ample domestic supply of filtered and treated water, but a lack of cheap industrial water has hampered the growth of the district because such a supply is considered essential in attracting new industries to consume Birmingham's production of raw materials.

First efforts to secure loans and grants for the project were held up because the self-liquidating character of the project was questioned. Birmingham answered the objection by securing signed, valid contracts from a number of industries, guaranteeing a consumption of 7,000,000 gallons daily when the water becomes available. The city itself agreed to take whatever water was necessary to supplement industrial consumption to the point where the loan would be serviced.

Two WPA crews started clearing the site for the impounding dam and making soil tests last February. The source of the water will be the Blackburn fork of the Warrior River, about a mile from Inland in Blount County. Here the water will be impounded by a dam approximately 180 feet high. The reservoir behind the dam will hold between 22 and 25 billion gallons of water. The lake will run back 7 miles into the hills of Blount County, and the system will easily supply 60,000,000 gallons daily. From the impounding reservoir, the water will be brought through a 60-inch steel pipe 20 miles to a point near Ketona, in Jefferson County, to a distribution reservoir.

It will be possible to handle a flow of 40,000,000 gallons daily from the impounding dam by gravity, but when the consumption reaches that figure, pumps will have to be installed.

The distribution reservoir will hold about 60,000,000 gallons, or a one day's supply at capacity consumption. From the distribution reservoir the water will be brought by gravity to industrial Birmingham.

As the project is planned, WPA will clear the site and excavate for the impounding dam, and also will clear the impounding basin and relocate the roads in the area. PWA will build the impounding dam and a portion of the water line. Here WPA will pick up the construction, completing the line, building the distribution reservoir and dam and laying the distribution lines, which will be of cast iron and steel. The job will require about $1,000,000 worth of steel pipe and about $200,000 worth of cast iron pipe. Delivery of the pipe began March 1.

The entire project will furnish 3,600 man-years of work. WPA will employ about 5,000 men when the job is in full swing. PWA will employ a smaller number, but both jobs will be carried on simultaneously. As with all WPA projects, plans have been made to complete its portion of the work by June 30, but PWA has until January 1, 1937, to complete its part.

Maximum Civic Values at Minimum Costs

By CHARLES P. MESSICK
Chairman, New Jersey State Planning Board

PLANNING, if it means anything, and it does, puts first things first. It applies the principles of foresight and informed judgment. It points the error of sacrificing one essential for less desirable and less needed improvements. It anticipates future needs. It tends to prevent premature and unnecessary destruction of property values. It tends to protect and increase wealth. It reduces construction and operation costs by coordination of effort and services. It accomplishes important economies through avoidance of premature obsolescence of public structures because it uses significant data in planning, in timing, and in designing these structures. It assembles pertinent facts and data from which dependable conclusions may be drawn as a guide in the whole physical development of the community and the state.

Planning is not for the primary purposes of creating new wealth in order that more revenues may be produced, but to develop the best program for providing public facilities and services. Yet increased ratables and long delays in the destruction of existing ratables do result as valuable by-products of sound planning. While planning could be defended perhaps on the proposition that it creates new tax dollars, it is more concerned with furnishing the blueprint for preserving them and stretching those that are spent by making possible maximum values at minimum costs.

Stripped of every sentimental and theoretical consideration, the practical conservation of our natural resources and the common-sense planning of our physical public improvements are among our most important problems. Our attitude toward and our policies respecting these matters will have far-reaching effects upon our social and material development. It is my hope that this growing tendency to look upon all our public undertakings as a part of a single integrated plan will result in the production of more adequate public facilities at less cost, better timing and balancing of essential and necessary construction programs, as well as a gradual development of sounder policies and more intelligent consideration of this whole range of common activities which we call government.

—From a paper presented at the State-wide Planning Conference at Rutgers University, New Brunswick, N. J., March 18, 1936.

A $32,000 Highway Budget Used Effectively in Radnor

By MILTON R. YERKES
Township Engineer, Radnor Township, Wayne County, Pa.

THE township of Radnor, in Delaware County, Pennsylvania, is situated in a rolling country district with a range in elevation from a low of about 200 feet to a high of 500 feet above sea level, providing reasonable grades in most instances. Rosement, in the east end of the township, and Wayne, near the west end, both on the Lincoln Highway, are closely built villages.

Ornamental highway markers have recently been erected by a volunteer organization of talented citizens with the help of the Township Commissioners, adding much to the attractive appearance of the locality. Danger spots, such as open end culverts, are marked by concrete posts with black horizontal stripes. Property owners have liberally contributed land to reduce square corners at much-used intersections to smoothly curving connections with concrete curbs. The materials were supplied by the Township Commissioners and the construction was done by the Highway Department.

Efforts to establish a sewer system for domestic drainage required the use of so much capital that the Commissioners decided to care for the highways with an unusually low expenditure, hence the slogan, "Save the surface, save all." With this in mind, the Highway Department proceeded to do just that.

Patrol Inspection and Superintendence

A highway superintendent with an assistant, both having automobiles, regularly patrol the highway system to secure advance information of conditions. While doing this work, the various groups in which the road workmen have been organized are directed in the performance of the actual care and maintenance in clearing streets, gutters, inlets and drains of litter, sand, fallen branches, leaves, etc.

Major and minor repairs to the above-mentioned features are accomplished by equipping the groups with trucks, tools, materials consisting of crushed stone, bituminous binder, ready-mixed smaller-sized stone, and, for use in any kind of considerable surface repair, a 6-ton gasoline roller with scarifier attached. All patching is done so as to produce an even, non-skid surface.

Many of the streets were constructed with the so-called rustic curb and gutter made of small quarry stone laid on edge 6 inches deep for a width of 18 to 24 inches comprising the gutter. Larger stone set on edge 6 inches above the gutter surface and 6 or 8 inches below the gutter surface, form the curb. A weed-producing condition which was expensive to clear and not nice to see developed. One and a half inches of the ready-mixed material over the top of the stony gutters transformed them into useful adjuncts of the highway system, providing additional width and free drainage.

Out on the so-called country roads, the ragged and broken edges of the bituminous surface, in the absence of curbs of any kind, are straightened and strengthened by the use of ready-mixed material to build up a "lip type" curb. Earth shoulders are maintained with a scraper and roller, assisted by the ever-present pick and shovel handled by an intelligent operator.

Experience with labor supplied by the relief administrations so far has been confined to the grading of earth roads, and cleaning of culverts carrying heavy drainage. This was accomplished with a fair degree of success.

Really productive operation depends upon the use of trained men, familiar with the locality, and taking pride

HIGHWAY MARKERS ESPECIALLY DESIGNED BY LOCAL RESIDENTS FOR RADNOR TOWNSHIP, PA.

1. A familiar scene in bygone days, one of eight markers designed by the Wayne Committee for Civic Progress and presented to the township on Anthony Wayne Day, December 14, 1935. 2. At St. Davids, the Welsh settlers built a church. This sign, like the others in the set, hangs from a post of red cedar and bar of oak, surmounted by a decorative Welsh dragon. 3. This sign depicts "Mad Anthony Wayne" in action at Chadd's Ford. 4. Commemorating the memorable encampment of 1777 at Valley Forge

and interest in their duties. A striking instance is the presence of a still capable man in the department with an unbroken record of fifty years of continuous service on the township roads.

In wintry weather similar methods are used. The trucks (four of them) are equipped with snow-plows and obliged to work long hours over-time to clear the more than 60 miles of roads. The recent snows have made necessary the emergency assistance of more than 30 men above the 15 to 20 regularly employed by the Township Highway Department.

In addition to the road mileage mentioned under the care of the Township Highway Department, the Pennsylvania State Highway Department controls some 32 miles of first-class highway. Regular patrolling to detect faults, and prompt attention to the surface, appears to be the solution to our problem of street maintenance. The highway budget for the year 1935 was $32,000.

Garbage and Refuse Collection a Divided Responsibility in Madison, Wisconsin

Rubbish Handled by Street Department, and Garbage Removed by a Separate Organization

A SYSTEM of rubbish and garbage collection which differs from the usual practice is operating successfully in Madison, Wis. The collections of rubbish and garbage are under separate supervision, a Garbage Superintendent has charge of the removal of garbage, and a Street Commissioner has charge of rubbish removal and street maintenance.

The Garbage Department has three pick-up trucks, one tractor which pulls four trailers, and four trailers drawn by teams. The garbage is delivered to a hoggery outside the city. Garbage is collected twice a week from residences, and every day from restaurants, hotels, provision dealers and similar places of business.

The Refuse Department has four trucks, each equipped with a driver and two men for pick-up. All the rubbish is used to fill in low land or is put on the various dumps around the city.

Garbage-Collection Regulations

A red card bearing the inscription, "Hang This Up in Your Kitchen," has all the rules which the householder should follow to insure the necessary cooperation between the householder and the collection department. The rules are as follows:

1. The garbage of the city of Madison is collected under the supervision of the Superintendent of Garbage Collection.
2. The owner or occupant of each house, apartment, flat, restaurant or hotel shall provide a sufficient number of portable, metallic cans; said cans to be watertight, provided with handles, and close-fitting covers which shall not be removed except when necessary.
3. Garbage cans of residents must not be less than 5 gallons nor more than 15 gallons in size. Garbage cans of restaurants and hotels shall not be more than 35 gallons in size. If more capacity is needed, additional cans must be furnished.
4. All garbage from residences shall be drained and wrapped in paper before being placed in garbage vessels, and garbage from hotels and restaurants shall be deposited in the garbage vessels, after draining, without wrapping.
5. Put into the garbage can all animal and vegetable refuse from the kitchen.
6. It shall be unlawful for any person to place in the garbage cans any ashes, earth, tin cans, crockery, excess paper, paper boxes, or any other refuse other than garbage. Cans containing any of the above will not be emptied by the collector.
7. Cans must be placed on the ground floor easily accessible to the collector, and when filthy, leaky, or in any way defective, be replaced by new cans.
8. You are not entitled to the services of this department unless you conform to these rules.
9. After you have complied with the above rules, report all complaints to Garbage Department, Badger 260.
10. The above rules are in accordance with Section 7.26, General Ordinances of the city of Madison.

Rules for the Collection of Tin Cans and Glass

A green card with the same inscription, "Hang This Up in Your Kitchen," gives the rules pertaining to the collection of tin cans and glass, which is handled by the Street Commissioner. The rules are:

1. The collection of refuse such as tin cans, ashes, paper, glass and grass is under the direction of the Commissioner of Streets.
2. The owner or occupant of each house should provide some sort of a container in which to keep such refuse.
3. The container should be a bushel basket, wooden box, garbage pail or the equivalent.
4. Containers shall be kept off streets until 12 hours prior to days of collection.
5. Collection will be made twice a month.
6. On date of collection containers should be placed in front of the house on the terrace near the gutter.
7. No refuse should at any time be placed in the gutter.
8. Placing of refuse of any kind in the gutter is strictly against city ordinance (which provides a penalty).
9. Tree and shrub trimmings will not be collected.
10. This is extra service given to the public and we are entitled to your cooperation.
11. For days of collection see opposite side of this card.
12. If scheduled collection date falls on a holiday, collection will be made on following day.

R. H. Brumm is Street Commissioner in charge of rubbish collection, and R. H. Stadelman is Superintendent of Garbage Collection.

Sewage and Stream-Pollution Problems in Eastern Wisconsin

Sewerage Districts and Industrial Cooperation Hasten the Clean-up of the Lower Fox River

NATION-WIDE interest in pollution abatement has been rapidly increasing, and recent development along major watercourses in Wisconsin has been in keeping with this general trend. A comprehensive sewage-treatment program, believed to be one of the largest in an area of this size in the country, is now under way in the Fox River valley in eastern Wisconsin. The program involves eleven cities and villages, the construction of nine plants and miles of interceptors costing more than $5,000,000. This area comprises the most important industrial center in the state, outside of Milwaukee.

The lower Fox River, about 38 miles long from its source, Lake Winnebago, to its mouth in Green Bay, has a fall of 166 feet, of which 138 feet furnishes the water power to create the tremendous industrial growth in the valley. Before the river became so badly polluted, it was used also for swimming, boating and fishing.

Fourteen power and navigation dams have been constructed on the Fox River, seven by private capital and eight by the Federal Government. The water transportation facilities, water-power development and abundant water supply are largely responsible for the growth of the valley's industries, the most important of which is paper and pulp making. There are 34 such mills in the valley and they have a combined output of 1,034 tons per day. Since from 50,000 to 200,000 gallons of water are needed to manufacture a ton of paper, there is a need for an almost inexhaustible supply of clean and colorless water without excessive hardness.

For more than eight years the Wisconsin Board of Health, through L. F. Warrick, State Sanitary Engineer, carried on its fight to force communities to halt the dumping of raw sewage into the river and to assist manufacturers in finding some method of reducing the load of industrial wastes. In at least one case the Board resorted to court action to force a municipality to obey its orders to stop polluting the river. That city, Oshkosh, now has made arrangements for the construction of a plant, and preliminary work is completed.

Cumulative Pollution

A study of the location of the cities on the river reveals the situation which existed. A more rapid clean-up has been made possible by PWA funds.

The lower Fox River drains Lake Winnebago, a shallow body of fresh water 30 miles long and 10 miles wide. Oshkosh is situated on the shore of the lake about midway between Fond du Lac, at the southern end, and Neenah, at the northern end, where the river begins. Adjoining Neenah is Menasha. Seven miles below Menasha lies Appleton, on both sides of the river. Oshkosh has a population of 40,000; Neenah, 9,151; Menasha, 9,062; and Appleton, 26,000. Three miles below Appleton, on the south side of the river, is the village of Kimberly, with a population of 2,500, and almost adjoining Kimberly is Combined Locks Village, population 500. On the river, directly across from Kimberly, is Little Chute, population 3,000. Three miles farther down the river is Kaukauna, 6,500 population, spread on both sides of the river. From Kaukauna to Wrightstown, a village of 600, is a distance of 7 miles. About 11 miles beyond Wrightstown is DePere, also spread on both sides of the river, having a population of 5,500. Finally comes Green Bay, where the river is joined by the East River, a tributary, before it empties into Green Bay, which is an arm of Lake Michigan. The city of Green Bay has a population of 37,500.

The series has created a succession of pools filled with the untreated domestic and industrial wastes of the cities and villages. These open septic lagoons prevented the use of the river for swimming or boating, fish life disappeared, and Green Bay closed the public beaches on the shores of

THE COMPLETED SEWAGE-TREATMENT PLANT AT GREEN BAY, WISCONSIN

the bay because of the danger of disease from the contaminated waters. Every summer the city and village officials received numerous complaints of offensive odors given off by the river. The colored, turbid waters of Fox River were filled with fibrous materials, sludge deposits and unstable organic wastes. The sight and odor of dead fish along the banks added to the nuisance. Citizens demanded action.

The State Legislature, heeding these demands in 1925, appropriated $10,000 annually to initiate a program to halt stream pollution in Wisconsin. In 1927 the Legislature adopted statutes creating the State Committee on Water Pollution, and the Bureau of Sanitary Engineering of the State Board of Health was named the administrative agency to consolidate all activities aimed to prevent pollution.

The Bureau immediately started a series of surveys to determine the degree of pollution and the remedies. This study began in 1926 and has furnished a definite basis for the present clean-up activities. The technical personnel of the paper and pulp mills assisted. The Advisory Committee on Waste Disposal of the Wisconsin Pulp and Paper Industry was organized, and as a result of its activities many improvements were made in the mills to reduce pollution by wastes. Mill owners also were interested because steps were taken to reduce the loss of fibers, and profits were thereby increased. While the surveys revealed excessive pollution, plans were made to effectively and economically reduce the wastes to prevent nuisances, to restore fish life, and protect public health.

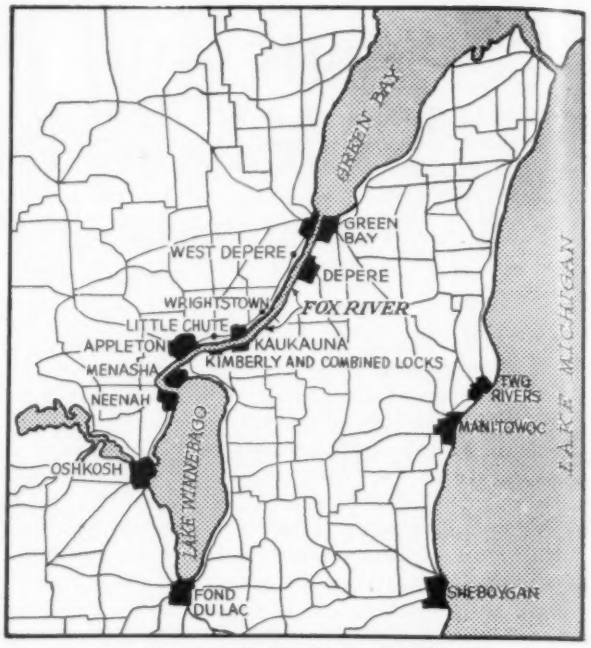
Sewerage District Proposed

Experience showed the advantages to be secured from the creation of a single sewer district in the Fox River Valley. In 1927 the Legislature provided statutes to permit the establishment of a metropolitan sewerage district consisting of Neenah, Menasha, Appleton, Little Chute, Combined Locks, Kimberly and Kaukauna. Officials from these cities conferred and jointly appropriated funds for a survey to determine the costs of such a plan. Pearse, Greeley and Hansen, consulting engineers, conducted the survey. As a result, the Fox River Valley Municipalities Association was organized, eventually to include all communities between Fond du Lac and Green Bay. This group, one of the strongest municipal associations in the state, still meets monthly to discuss municipal problems.

The engineers suggested two plans, one for a joint district to include all the communities, with a treatment plant below Kaukauna and an interceptor to carry the wastes from the up-river communities. The other plan provided for three units: one for Neenah and Menasha; another for Appleton; and a third for the down-river communities. The communities rejected all plans on the ground that the cost was prohibitive. The State Board of Health, through its Committee on Water Pollution, constantly kept the problem before the communities. Municipal governments changed, but the state engineers appeared frequently before them and kept the problem constantly in the foreground.

East River Metropolitan District

Finally this endeavor resulted in the formation of a metropolitan district at Green Bay to check the pollution of a tributary, the East River. For many years residents of that section of the city in the neighborhood of the East River had complained of bad odors, particularly in summer. The Green Bay district was established December 3, 1931. It was the first step in the vast change which will within the next two years result in a restoration of the river to an unpolluted state.



MAP OF THE FOX RIVER DISTRICT IN WISCONSIN

The first treatment plant at Green Bay was erected at a cost of $800,000. Municipal bonds were issued to provide for its construction. It was placed in operation in February, 1935, and is now taking care of approximately 45 per cent of the city's sewage. It has a capacity of 5,000,000 gallons daily. The plant provides for primary treatment, the chlorinated effluent being discharged into the bay. The operation of the plant has eliminated the stench from the East River. An addition to the plant to provide two more clarifying tanks and two more digesters with sand sludge beds is planned at a cost of $225,000. With the necessary sewerage system, the total cost of the addition will be $911,000, which is financed by $525,000 in city bonds and the balance through a PWA grant. The contracts for construction of the addition have been awarded and work started. Completion of this contract will permit swimming at the municipal beach on Green Bay once more. Sludge digestion with gas collection at Green Bay will eventually furnish sufficient gas to both heat and operate the plant.

Other Treatment Plants

At DePere and Wrightstown the officials are seeking PWA grants for the erection of plants, for these officials have been told by the State Board of Health that they must stop dumping untreated wastes into the river. The State Board hopes for voluntary action on the part of cities but if necessary, the Board will resort to the courts. Estimates indicate that DePere's plant would cost approximately $300,000, and that city has applied for Federal aid to help finance this cost. DePere is considering the building of an interceptor line to Green Bay and sending its sewage there for disposal, even though the initial cost would be as great as that of building its own plant. Wrightstown also is seeking a Federal grant for construction of a plant that would cost about $40,000.

At Kaukauna, where the plant will cost $300,000, the manufacture of pipe for the sewer lines has been started, the contracts for laying the sewers have been awarded, and the plans for the disposal plant are complete. Kaukauna's grant from PWA will be 45 per cent of the total cost, and the balance will be financed by a sale of municipal bonds. The plant will have a capacity of 4,000,000 gallons daily and will also handle industrial wastes. The plant is to be designed for expansion in the future. This will be a primary treatment plant similar to that at Green Bay, with provision for chemical precipitation during periods of low flow in hot weather. It will consist of bar screens, chemical mixing equipment, settling tanks, sludge drying beds, sludge storage and digestion tanks, and possibly grit chambers. The digestion tanks are to be covered and the gases will be collected and used in heating the plant. An optional method for disposing of the sludge by mechanical dewatering and incineration is being considered.

The total cost of the plant at Little Chute, where contracts have already been let and construction work started, will be $44,078. The village has sold $25,000 of municipal bonds for its share of the cost, and the Federal Government will pay the balance. Little Chute has already installed its interceptor system. The plant will provide chemical treatment with both primary and secondary clarifiers.

Kimberly and Combined Locks are planning the construction of a joint plant. The two large paper mills, a unit of the Kimberly Clark Corporation at Kimberly and the Combined Locks Paper Co., will be asked to confer with them on the plans. Both these villages are built around these mills, and the disposal of industrial wastes is a mutual problem. Neither of these villages sought a PWA grant, because they have not sufficient relief labor to provide men for the construction jobs.

Fond du Lac

Fond du Lac, located at the upper end of Lake Winnebago, was the first city in the valley to complete its sewage-treatment works. A modern separate sludge digestion type plant has been constructed, and during February, 1935, two new clarifier units were added to remove solids from the local tannery works prior to final disposal along with the domestic sewage. Experiments conducted by the sanitary engineering division of the State Board of Health have shown the practicability of digesting at least a part of the tannery solids when mixed with sewage solids. Fond du Lac deserves much credit for taking the initial steps in this general program looking toward the clean-up of the Fox River.

The Appleton Plant

One of the problems in Appleton was that the interceptor had to cross the Fox River, a job that was completed last winter while navigation was closed. This involved the building of cofferdams and the sinking of the sewer line some 7 or 8 feet below the river bed. Appleton's plant will cost about $700,000, of which the city will pay $385,000 in municipal bonds. The PWA will provide $315,000. The plant will provide primary treatment with chemical treatment during periods of low flow. The equipment will be similar to that at Kaukauna, including provision for chlorination.

The Neenah and Menasha Joint Project

In the twin cities of Neenah and Menasha the awarding of contracts was delayed pending the clearing-up of certain technicalities in the state laws providing for the organization of a joint sewerage district for the two cities. A joint commission, composed of two men named by each city council, these four naming the fifth, was set up. The commission will administer the affairs of the district with the two cities sharing the costs. The intercepting sewers and sewage-treatment plant for these cities would cost in excess of a million dollars. This estimate contemplated the installation of an activated sludge plant. Revised plans now call for a 10,000,000-gallon daily capacity chemical precipitation plant, the change being made chiefly because of the industrial waste problems and the seasonal variation in treatment requirements. PWA will pay 45 per cent of this cost, and the two cities have already issued bonds to pay their shares.

Oshkosh to Finance by Rentals

Oshkosh will build its plant and sewer system at a cost of $913,000. PWA will provide a grant of $411,545, and the city is securing a loan of $503,000 from the Emergency Administration of Public Works through the sale of municipal sewage-treatment revenue bonds. Primary treatment with chlorination is proposed, with a possibility that secondary treatment will be added later. A single treatment plant is planned, with a river crossing. The system will have a capacity of 10,000,000 gallons daily. Because the city lies on a flat plain, there is an unusual sewage problem which will necessitate erection of four or five pumping stations. Oshkosh plans to separate all its storm and sanitary sewers.

Another economic factor involved in this huge program is the large number of men who will be given jobs as a result. More than 3,000 unemployed men are expected to be removed from the relief rolls during 1936 and as a result, city officials predict that the unemployment situation in the valley will be almost eliminated.

Forests Control Floods

ACTUAL figures on the value of forest growth in controlling and preventing floods are brought out in tests by the Forest Service of the Department of Agriculture in eight major regions of the United States.

In the Ohio Valley forest soil is 15 to 30 per cent more porous than field soil and absorbs 50 times as much water as bare soil. Open pastures absorb only a third to a twentieth as much water as forests.

On 23 small watersheds at the headwaters of the Mississippi, the flood flow from forested watersheds for one year was only 38 cubic feet of water per second per square mile. But the flood water from grassed and abandoned agricultural lands was 432 cubic feet, more than 10 times as much, and that from denuded land 1,304 cubic feet, nearly 35 times as much.

In the rich loessial uplands of the Mississippi Valley, near Holly Springs, Miss., surface run-off in a cultivated cotton field was 58 per cent of the precipitation, and in individual rains amounted to as much as 96 per cent. From barren plots in an old field, total run-off was 48 per cent of rainfall, and erosion totaled nearly 160 tons per acre. In direct contrast, total run-off in an oak forest amounted to less than 1 per cent of precipitation.

Tests by burning and raking off the litter from pine-hardwoods plots in the Southern Appalachians, show that removal of the cover increases run-off from 10 to 150 times.

The disastrous Los Angeles flood of January, 1934, which took 34 lives, was due to rain falling on a steep watershed that had shortly before been swept by fire. A great volume of water rushed over the loosened and unprotected earth, carrying 67,000 cubic yards of débris for each square mile of watershed, engulfing everything. Neighboring watersheds, protected by unburned brush forests, yielded clear water, which caused no unusual erosion and no serious damage.

New Deferrization Plant at Reading, Massachusetts

By PHILIP WELCH
Superintendent, Board of Public Works

AN adequate, and at first, very satisfactory, groundwater supply was placed in service by the town of Reading in the fall of 1931, when a change over to the new "Hundred Acre Meadow" plant was made. The Hundred Acre Meadow supply is taken directly from driven wells into the distributing system without chemical or mechanical treatment. Within two years, however, the presence of iron in the water had become noticeable, and within the next two years the amount present became so great as to cause serious complaints from the consumers.

This condition, though not anticipated when the supply was chosen, is not unusual in supplies taken from similar sources in the vicinity, although the rapidity of increase of iron content is a little out of the ordinary. The diagram shows the growth of the iron content of the water from 1931 to date. Complaints developed coincident with the marked increase in iron content at the end of 1934.

Water Not Difficult to Treat

As soon as the number of complaints became serious, careful laboratory tests of the water were made, the results indicating that treatment of the water by aeration and filtration would produce a satisfactory degree of removal of iron, and also decrease the amount of carbon dioxide present. This latter effect is very desirable, since it reduces both the hardness and the corrosiveness of the water. Fortunately, the type of water obtained from the present wells is relatively easy to treat, and chemical treatment is not necessary. This, of course, will help to keep the cost of treatment at a minimum.

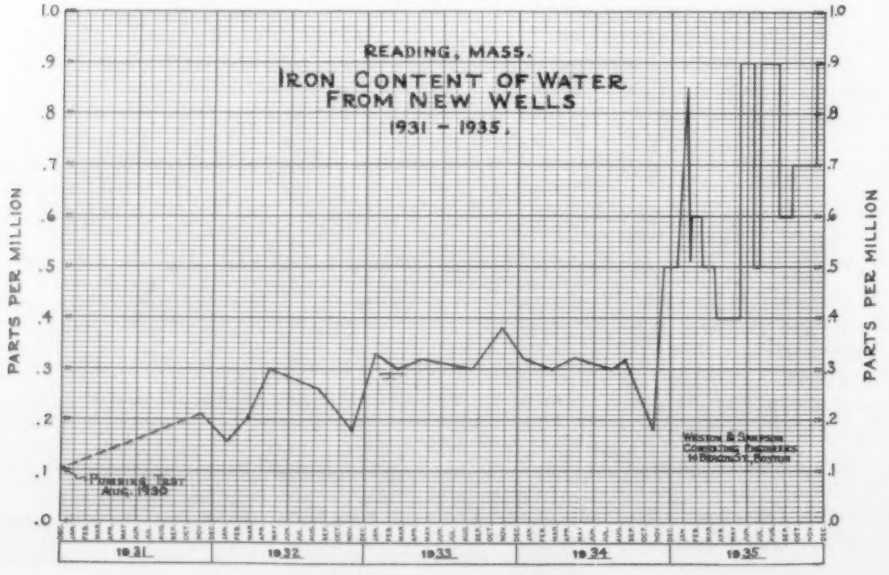
After a careful consideration of all other possible sources of supply, such as neighboring towns and the Massachusetts Metropolitan District supply, it was determined that the addition of a deferrization plant to the present system would be the cheapest and the best method of improving matters, since, with the iron removed, the present supply would be excellent in every respect.

The plant best suited to the present and future needs of the town was estimated to be one having a capacity of about 1,880,000 gallons per day, and the total yearly increase in cost of water with such a plant in service was estimated to be about $27 per million gallons, which will be reduced to $7 after amortization of the bonds issued to cover the cost of construction. Even during the period of maximum increase, the total cost of the water per million gallons was determined to be far less than that from any other available source.

Type of Deferrization Plant

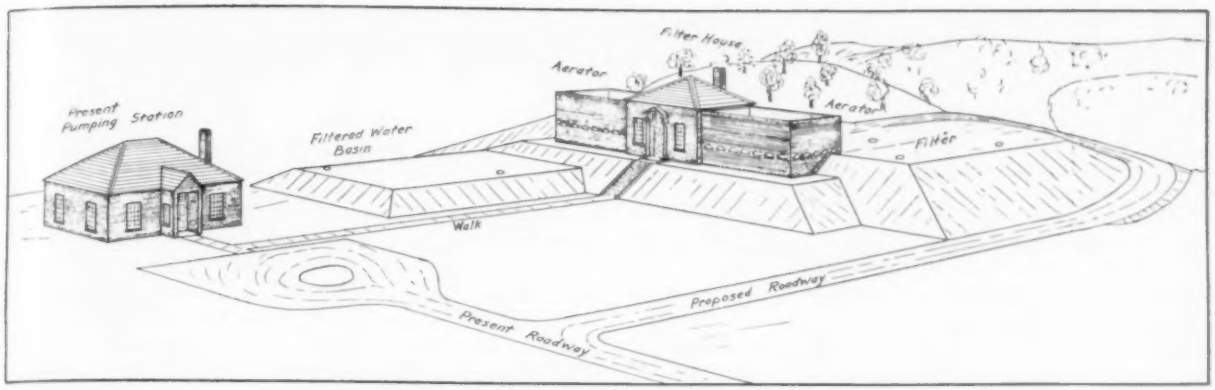
The type of plant decided upon was one in which the water is first aerated by spraying it through nozzles and letting it trickle through a coke bed, and then filtered through a slow sand filter at a nominal rate of 10 million gallons per acre per day.

There are two aerators, each 20 x 32 feet in plan, and two filters, 64 x 64 feet. Each aerator contains forty 2-inch spray nozzles and a 4-foot depth of "egg-sized" coke. Each filter contains a 3-foot layer of sand over a 12-inch layer of graded gravel. After filtration, the water passes to a 48 x 48-foot filtered water basin having a capacity of 155,000 gallons, from which it is pumped by the high-lift pumps to the distribution system.



Plant Automatic

As the present pumping plant is automatic in operation, it was decided to make the new iron-removal addition automatic also, so as to keep the cost of attendance at a minimum. With slow sand filters, this was relatively easily accomplished by providing float switches set to operate the low-lift pumps to maintain the level of the water in the filtered water basin as constant as possible. The filter rate-of-flow controllers are set to



LAYOUT OF THE IRON-REMOVAL PLANT AT READING, MASS.

keep the rates of filtration synchronized with the low-lift pumps.

The cycle of operation is as follows:

A. The high-lift pumps start whenever the pressure control indicates that the water level in the standpipe has been drawn down 20 feet.

B. The low-lift pumps start and the filter effluent valve opens whenever the water level in the filtered-water basin drops 2 feet below the overflow.

C. The high-lift pumps stop when the standpipe is full, or when the low-water safety control indicates that the level in the filtered-water basin is too low.

D. The low-lift pumps stop and the filter effluent valve closes when the filtered-water basin is full.

Since the filters are of the slow sand type which normally operate without the necessity of chemical coagulation of the water, the plant will require only a minimum of attention. Loss-of-head and rate-of-flow gages are provided which show the condition of the filters at a glance. Readings on these gages will regulate the periods at which the filters will have to be scraped.

When necessary, at comparatively long intervals, the subsidence basins must be drained and the coke in the filters flushed out with a fire-hose stream. All scrapings are flushed out through sand hoppers within the filters to a settling basin, where the sand may be reclaimed.

Ideal Location

The site of the new works is on a knoll to the eastward of the present pumping station, on terrain which appeared almost made-to-order. The filtered-water basin is nearest to the pumping station on the lower ground, while the aerator and filters are located higher on the slope. The elevation of the plant was fixed by the desirability of obtaining drainage for the subsiding basins under the aerators. The bottoms of these were therefore placed above the level of the adjacent meadow. The depth of the filtered-water basin was fixed so as not require too deep excavation below ground water and to reduce the suction lift on the high-lift pumps. The units were so located on the site as to balance the excavation and embankment as closely as possible, and the final arrangement is very satisfactory both from the architectural and the operating standpoint.

The site is underlaid by varied materials ranging from fine sand to the coarsest type of gravel, with the surface covered by leaf mold, peat, and loam. After the removal of the surface layer, the underlying strata furnished an excellent foundation for the structures.

Because of the uplift on the floor of the filtered-water basin, the floor was designed as a flat slab. The filter floors, which are above ground water, were designed as groined arches, since this form offers the greatest all-round economy, facilitates the drainage of the filters, and reduces the quantity of gravel required.

The contract was awarded in October, 1935, and the actual construction started on October 25. Owing to fine cooperation between the two officials, the contractor, the engineers, and the Federal Resident Engineer-Inspector, the work proceeded with a minimum of difficulties and interruptions until the onset of severe weather in the middle of January. The normal ground-water elevation during the fall and winter is from 5 to 6 feet above the bottom of the filtered-water basin, but, owing to the dry fall, which caused an abnormally low ground-water level, the filtered-water basin was built with only a small amount of pumping. By the time the walls were poured, however, the ground water had risen, and pumping was necessary during the placing of all the external piping.

Financing and Personnel

The bid of the Tuller Construction Co., of Red Bank, N. J., was $56,200, for the iron-removal plant construction only. The filter equipment is to be furnished under another contract for approximately $1,800. The new low-lift pumps are to be furnished and installed by Rideout, Chandler & Joyce, of Boston, for $3,448.

As the town secured a 45 per cent grant from the Public Works Administration to help pay for the plant, the work is under Federal supervision. C. H. Getchell is Resident Engineer-Inspector for the PWA.

The whole project was undertaken under the authorization of the Board of Public Works of the town of Reading, Harold W. Putnam, Chairman. The author is Superintendent of Public Works. Weston & Sampson, consulting engineers, of Boston, made all the studies, prepared plans and specifications for the plant and superintended construction, with Stanley T. Barker as resident engineer. Wallace Weaver was superintendent for the contractor. The plant will be placed in operation on May 20, 1936.

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WPA Relays Old Brick Pavements

By M. J. MORRISSEY
Works Progress Administration, Chicago, Illinois

THE brick pavements of the city of Chicago comprise approximately 11,500,000 square yards. When the WPA program was originally written, the city was divided into 30 zones, and 166,667 square yards of work to be done under this program was allotted to each zone. Of these 30 zones, 6 were to be paved with relaid brick, and 24 with cement-bound macadam. A total of 1,000,000 square yards of the brick relay program was to be done on a 20 per cent new brick basis, and 4,000,000 square yards of cement-bound macadam.

Work on the brick program was started on October 25, 1935, and by November 15 we had 22 gangs of 150 men each at work on 11 locations. These gangs are worked on a two-shift basis, six days a week, allowing us to use the full 30-hour week which is the maximum time that relief labor can be employed. One gang reports at 7 A.M. and quits at noon, the other gang reporting at noon and working until 5 P.M. The brick pavers are union men and furnished by the city of Chicago. The regular union 8-hour day is worked by these pavers; that is, from 8 A.M. to 4:30 P.M. with the usual half-hour for lunch at noontime.

Brick pavers furnished by the city have been a stumbling block. The original plan was to use two pavers to a zone. We started out with one paver to a location, then two pavers, and then moved up to three pavers per location, and during the bad winter weather we went back again to two pavers. During good paving weather we have used as many as four pavers per location. The reason for using only two pavers per location during inclement weather was the difficulty of keeping ahead of paving with the ripping-out and cleaning gang. During December and January bull points were used most of the days, for the pavements were frozen so badly that bars could not be used.

At the start of the program on October 25 there were no contracts let for any type of material, so that it was bought on an emergency basis—not more than $300 worth of one class of material in any one day. An order for 6,000 paving brick at the delivered price in Chicago just gets in under the $300 classification. This amount of brick had to satisfy the demands of all the superintendents on the eleven locations. The same thing was true of screenings and filler. The filler situation became so bad that at one time there were 14,000 square yards of completed paving laid without filler, which was delivered at the rate of 2,250 gallons per day.

Anyone interested in starting a WPA brick relay program must have a thorough understanding of the rules of the U. S. Procurement Office as to procedure in ordering materials. It usually takes about three weeks from the writing of a requisition before bids are received from the vendor; after this it may be at least a week until the contract for material has been awarded and the bond posted and accepted. All this means a delay of at least a month from the time materials are needed or ordered until actual delivery is made to the construction forces.

The first program of brick relay, covering only six of the city's thirty zones, was successful, so that 2,500,000 square yards of the cement-bound macadam program was changed to brick relay to cover the whole city, requiring 18,000,000 additional brick.

Up to the end of January 130,000 square yards of pavement were completed and the unskilled labor from the relief organizations was being educated in that type of work, so that when forty gangs were put out on thirty locations it became possible to finish 10,000 square yards of completed pavement per day, weather permitting.

ACKNOWLEDGMENT.—From a paper presented before the National Paving Brick Association at Columbus, Ohio.

Cremations Cost $2.58 in D. C.—A Municipal Utility Worth Study

By R. W. HILL

SPEAKING from a background of thirty-five years' experience, the District of Columbia heartily approves of its municipally-owned crematorium. Only the unidentified paupers are buried; the identified indigents are cremated in a municipal crematorium.

Built in 1900, its purpose was the sanitary disposal of unclaimed bodies. A person is liable for the support of direct antecedents or descendants, but not for the disposal of their bodies after death. If relatives do not claim bodies, the District then cremates them in its establishment. The ashes are retained for twelve months, during which time relatives may claim them. If not claimed at the expiration of this period, they are buried appropriately, with suitable identification.

During the fiscal year ending June 30, 1935, 692 bodies were cremated at an approximate cost of $2.58 each. Any one familiar with the facts as to burial costs, can readily see how many thousands of dollars the crematorium saves the District annually. No private cremations are permitted in the retort, but there is a private crematorium maintained by a local undertaker in the District for paying cases.

Dr. Edgar A. Bocock, the Superintendent of Gallinger Municipal Hospital and of the crematorium, says that there have never been any complaints from relatives objecting to this method of disposal of human remains. Certain religious groups are theoretically opposed to cremation, but they have never complained about the operation of the municipal plant. Those groups largely care for their own dead, and probably refrain from missionary work.

Dr. Bocock considers an oil-burning crematorium to be most satisfactory, all things considered. It is easy to operate, clean and economical. Most authorities are now of the opinion that cremation offers an ideal method of disposing of human remains, and it is distinctly to the advantage of any sizable municipality to operate its own plant.

School Children Make Survey of Home Garbage-Disposal Methods

As a Class Exercise, Grade Scholars Make Duplicate Reports Where No City Collection Is Available

By TROY A. SNYDER
Harbor High School, Ashtabula, Ohio

ONE of the most perplexing problems associated with proposed improvements in many phases of city government is that which has to do with the securing of accurate information on practices of citizens. Before one can make concrete proposals, or intelligently advance new ideas for civic betterment, he must possess accurate information about the practices which are prevalent in the city. Mere guesswork or opinion is never a justifiable basis for proposing improvements. Factual data are absolutely essential. In certain instances such data are easily obtained; in others, facts are so difficult to secure that few city officials attempt to get them. Officials have a feeling that conditions are not what they should be, but are unable to get factual data to support their opinions.

A Problem

To illustrate, let us take a city—and such cities are legion—which places the burden of garbage disposal upon the individual citizen. How do city officials know what disposition is made of garbage? What proportion of the people pay a collector to haul it away? How many burn it in the furnace in the winter and bury it in the garden in the summer? How many take it to the city dump? If the city officials make an attempt to get at the facts in the matter, those citizens who follow unapproved or illegal methods get scared and misrepresent conditions. This fact is so generally recognized that few attempts are made to collect such data. As we have said before, such facts are absolutely necessary if any intelligent action is to be taken. It is the purpose of the writer to suggest a procedure which, if properly followed, will get such facts. Furthermore, the facts obtained will possess very high reliability.

Securing Data

Ashtabula, Ohio, a city of more than 20,000 inhabitants, has no system of garbage collection which reaches all the people. Those who wish to do so may pay a person to collect it; others get rid of it as best they can. The survey under consideration was conducted by the Occupations and Citizenship class of Harbor High School, Ashtabula, under the direction of the writer. The pupils set up a questionnaire on methods of garbage disposal. These questionnaires were distributed to all seventh and eighth grade pupils in the city, 924 in all. The children were asked to give the name of the street they lived on and the approximate house number of their home. They were definitely instructed not to give their names. They were then told that the purpose of the survey was to secure accurate information about methods of garbage disposal in Ashtabula and were asked to check all methods used by their families.

The following methods were listed on the questionnaire:

(1) Garbage is collected by a paid collector.
(2) Garbage is collected by an unpaid person.
(3) Garbage is fed to the chickens.
(4) Garbage is burned inside the house in the furnace or stove.
(5) Garbage is burned outside the house.
(6) Garbage is buried in the garden, a vacant lot or elsewhere.
(7) Garbage is taken to the city dump.
(8) Garbage is dumped into the sewer.
(9) Garbage is thrown over the lake bank, into vacant lots or along country roads.

In all, 924 pupils reported on the blanks which were distributed by the members of the Occupations class. Space does not permit a complete analysis of the results of the survey in this paper. Briefly, they were as follows: 272 homes, or 29 per cent, had the garbage collected by a paid person; 143 homes, or 15 per cent, had it collected by an unpaid person; 158 homes, or 17 per cent, fed it to chickens; 361 homes, or 39 per cent, burned it in the furnace or stove. All the above methods are permissible under city ordinances if they do not create a nuisance. The methods which follow are all illegal under existing ordinances: 197 homes, or 21 per cent, burned the garbage outside the house; 407 homes, or 44 per cent, buried it in the garden, a vacant lot or elsewhere; 221 homes, or 24 per cent, took it to the city dump; 15 homes, or 2 per cent, threw it into the sewer; 30 homes, or 4 per cent, threw it over the lake bank, into vacant lots or along country roads. The 924 homes used a total of 1,804 methods or, on the average, slightly less than two methods per home. Of the 1,804 methods used, 934, or 51.7 per cent, were legal; 870, or 48.3 per cent, were illegal. All very interesting, you say, but is it accurate?

The Check for Accuracy

To check for accuracy, the members of the survey group distributed eighty questionnaires to three seventh and eighth grade homerooms in Harbor High School. These were tabulated and kept together according to homerooms. One month later the same pupils were given an opportunity to mark the blanks again. Then, judging from the handwriting, the house number and the name of the street the pupils lived on, the paper marked by a pupil the first time

was compared with the one he marked the second time. The theory was that a pupil who had misrepresented the facts on the first paper would be unable to mark the second one the same way a month later, while the one who was honest would experience no difficulty either time. The results were as follows: (1) 49 papers checked exactly both times; (2) 12 added one method the second time but in other respects were identical; (3) two pupils added two methods the second time but in other respects were the same; (4) 63 pupils, or 79 per cent, marked the papers accurately the first time. The additions suggest that we did not get all the information the first time or that the families had started to use other methods. Of the other seventeen sets of papers eight took off one the second time, six added one and took off one, two took off two and added one, and one took off two.

These changes were not as serious as they seem to be, because they had a tendency to offset each other. The 80 pupils reported 167 methods used. When the papers were tabulated, by methods, the second time there were only 12 changes—these due to the additions and subtractions—or, in other words, a 7 per cent change. The survey as a whole, therefore, was approximately 97 per cent accurate. This is certainly a higher degree of accuracy than could have been obtained from other sources.

Guiding Principles for Conducting Such Surveys

1. The director should be a teacher with some knowledge of research technique. The work should be done by pupils as a class exercise.

2. Such surveys should make no attempt to pry into the personal affairs of the citizenry, but should deal only with practices. The confidential relationship between teacher and pupil should not be violated. Any other procedure would arouse a storm of protest on the part of the citizens, and rightly so.

3. The survey should not be conducted during campaigns for civic betterment when the subject being surveyed is one of the topics of discussion. Pupils are very sensitive to such influences, and the reliability of the survey would suffer accordingly.

4. The purpose of the survey should be to discover the facts in the case, not to prove or disprove some theory.

5. Results should be reported accurately, impartially and completely. If the facts discovered are of any significance, they should be reported in the local paper.

6. Any proposals or recommendations should be definite and based on the facts revealed by the study.

Results Published in Local Paper

The survey reported above was published in the local paper. Mimeographed copies of the complete report were presented to the City Manager, members of the City Council and the City Health Officer. It has caused much discussion, and we hope it will lead to some permanent improvements. No one has questioned the methods, procedure or results. Although it was not done by request of the City Council, that body gave the students a vote of appreciation for their work. It is the firm belief of the writer that such surveys, properly conducted, can be made a source of valuable information for city officials. Information can be obtained which could not be gotten in any other manner. To be successful and to prevent adverse criticism, the guiding principles cited above should be closely adhered to by the survey staff.

Housing Which Will Replace a Cleveland Slum

This PWA $3,800,000 West Side slum-clearance project, under construction on a hillside overlooking Cleveland's harbor, will replace with homes for 62 families the notorious Whiskey Island slum

Fast Billing at Brainerd, Minnesota

Two Meter Readers Handle All the Work in This 100 Per Cent Metered City

By W. D. McKAY
Secretary, Water and Light Department

PRIOR to October 1, 1920, water rates in Brainerd, Minn., were billed on a flat-rate system. Within three months after that date, about 6,000 water meters were installed, covering the entire system. As the city also furnishes electricity throughout the city, two sets of bills were sent to customers. Unfortunately, it was found that customers would pay the water bill and leave the electric current bill unpaid, or vice versa, resulting in a lot of delinquencies.

To avoid these delinquencies, a new system of meter reading and billing was installed, which has proved effective in speeding up the payment of bills and in minimizing delinquencies. First, a form was prepared on the face of which is space for the complete extension of all water and electric meter readings and consumption, with the rules and regulations for customers at the bottom of the sheet, and on the reverse a complete listing of all rates. These are inserted in a book which the meter reader carries with him. One of these blanks is filled out by the meter reader as soon as he has completed the reading of a meter. The blank is left on the premises, so that the consumer knows at once just the amount of his bill. Should the bill appear too large, and the consumer not be satisfied, the reading can be checked at once. This avoids the cost of mailing bills, and if he desires, the consumer can send his check in payment of the bill and is not even required to make a trip to the office of the Water and Light Department.

In the office is a form which duplicates practically the face of the bill left with the consumer by the meter reader at the time the meter was read. This numbered form is made out in duplicate from the meter reader's book by a clerk in the office and filed in a cabinet, under the street and number in numerical order, so that when a customer calls to pay his bill there is no delay, since it is necessary only to receipt the bill. Customers who pay the bill in person are asked to bring the original statement left by the meter reader with them. When presented, it identifies the account without any questioning on the part of the clerk. There is another feature of the numbered duplicate bill filed in the office which is worthy of note. Sometimes a customer claims that he has paid his previous bill, but when the office of the Water and Light Department still has the original and duplicate in its file, the evidence usually convinces the customer that he has not paid the previous bill. All bills left in the file at the close of a month automatically show the arrears and make an added check on the cash and consumers ledgers.

An extension of sixty days for payment is granted before charging the penalty of 10 per cent. It is possible for Brainerd to be more liberal than most cities, for there is a provision in the city charter which makes the property owner responsible for all delinquencies in both water and light service bills. The Secretary of the Water and Light Department is required to send to the County Auditor on November 1 of each year a complete list of delinquencies to be placed on the tax roll against the property for collection, so that the city does not lose any money on its water or light bills. The Department allows people who are unable to pay their bills to work for the Department until the debt is liquidated.

ORIGINAL

Water & Light Dept. No. 8411

CITY OF BRAINERD

Date of Reading 193

Present this at the Office of the Secretary when payment is made.
Office Hours: 8 A. M. to 5 P. M., Except Paydays
when office is open to 6 P. M.

Name .....

Street and Number .....

METER READING

CLASS	READINGS	Consumption	Amount Dollars	Amount Cts	Discount	
Light	Present Previous					
Water	Present Previous					
Heat	Present Previous					
Pow'r	Present Previous					
Water Heat'g	Present Previous					
Sprin kling	Present Previous					
	Total					
	Adjustment					
	Discount					
	Total					
	Paid on Account					
	Balance					

NOTICE
Rules and Regulations for Customers

All rentals are due and payable at the office of the Secretary on or before 20th day of month following reading, when 10 percent discount will be allowed.

Parties moving into premises must report at once to the office of the Secretary, so that meter readings can be taken, and also ascertain whether previous month's rent has been paid, otherwise they will be held liable for said rent.

It will be appreciated if Office is notified of any leaks in streets or of any Street Lights out of commission.

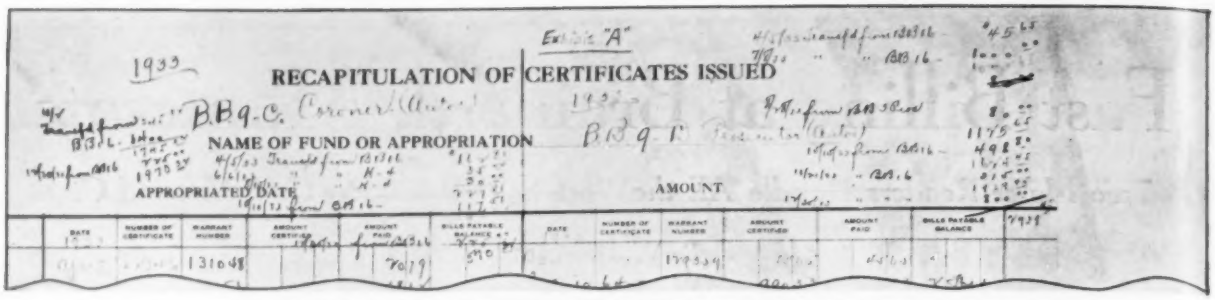
Rules and regulations governing the system are printed and a copy will be furnished on application if you have none.

THE ORIGINAL OF THE BILL FORM MADE OUT IN DUPLICATE IN THE WATER AND LIGHT DEPARTMENT OFFICE, BRAINERD

In the 1936 Municipal Index:

An article on slow sand and rapid sand filtration of municipal water supplies, and another article discussing the economic value of elevated storage tanks on the distribution system.

Have you read them in your copy of the Index?



1933 — RECAPITULATION OF CERTIFICATES ISSUED — 1933

NAME OF FUND OR APPROPRIATION — AMOUNT

APPROPRIATED DATE

A GLIMPSE OF THE OLD CERTIFICATION LEDGER, CUYAHOGA COUNTY, OHIO

Modern General Office Accounting

By LOTHAR G. RAEDER
Deputy County Auditor, Cuyahoga County, Ohio

FOLLOWING the stock market crash of October 24, 1929, and the growing realization of a depression becoming continually deeper, with the consequent strain on the financial structure of all local governments, a flood of new bills was introduced into the Ohio Legislature to alleviate the financial stringency. These bills placed additional duties on the County Auditor, requiring much more office space and a large increase in personnel.

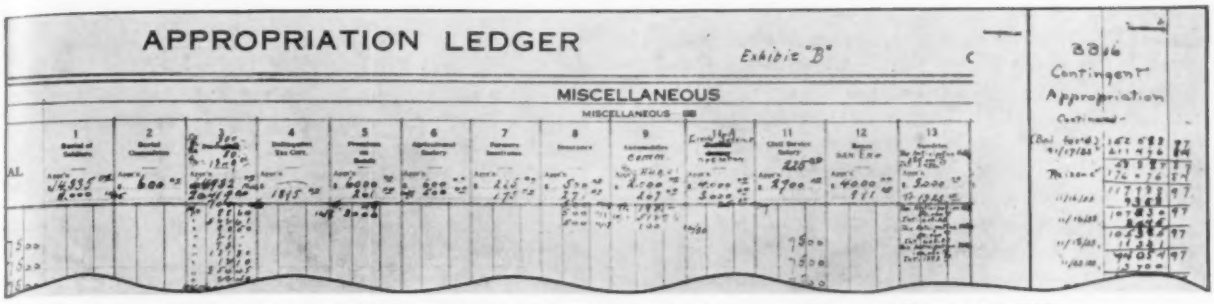
Now was the time to install more efficient methods of accounting, a study to which John A. Zangerle, Auditor, had devoted considerable time. Small tax collections made cost an important item. In October, 1933, a study for improvement was launched. Safes and vaults extending into the main floor space were moved back against the walls, high-top desks were removed and all clerks placed at low flat-top desks, and steel filing cabinets were rearranged to function more practically.

THE THREE ACCOUNTING MACHINES THAT MAKE THE IMPROVEMENT

GENERAL LEDGER
CUYAHOGA COUNTY, CLEVELAND, OHIO — ACCT. COUNTY GENERAL

DATE	REFERENCE	DESCRIPTION	TRANSFERS IN	TRANSFERS OUT	RECEIPTS	EXPENDITURES	BALANCE
		BROUGHT FORWARD	20,000.00	5,000.00	345,768.00	108,146.23	252,621.77
FEB 3 36	25489	HARRY L EASTMAN FINES COLLECTED JUV CT			2.50		
FEB 3 36	25490	HARRY L EASTMAN BD & CARE OF CHILDREN			5.00		
FEB 3 36	25491	HARRY L EASTMAN COSTS JUV CRT FEB 1936			35.00		252,664.27
FEB 3 36	25493	GEO H STAHLER SALE NOTES TAX ANTICIPATION	200,000.00				452,664.27
FEB 3 36	25494	GEO H STAHLER PAY STATION REC JAN FEB 1936			10.68		
FEB 3 36	25495	J J BOYLE ½ OF 1% DISC SALE SALESTAX			194.54		
FEB 3 36	25499	FRANK T CULLITAN ESCHEATED EST			55.63		452,925.12
FEB 3 36		COURT WARRANTS				4,307.52	448,617.60
FEB 3 36	99830	STEVEFEGERIS - INTER FEES				3.00	
FEB 3 36	100101	LAKEWOOD BD OF ED - USE OF SCHOOLS				55.00	
FEB 3 36	100102	LAKEWOOD PUBLIC LIBRARY - USE OF SPACE				5.00	
FEB 3 36	100103	LAKEWOOD CHRISTIAN CHURCH - USE OF SPACE				10.00	
FEB 3 36	100104	LAKEWOOD M E CHURCH - USE OF SPACE				10.00	
FEB 3 36	100105	LAKEWOOD PRESBY CHURCH - USE OF SPACE				10.00	448,524.60
FEB 3 36		TRANSFER FROM CO GENERAL TO SANITARY ENGINEER		3,000.00			445,524.60

A SHEET FROM THE NEW GENERAL LEDGER (12½ x 12 INCHES)



APPROPRIATION LEDGER

Exhibit "B"

MISCELLANEOUS

FROM THE OLD APPROPRIATION LEDGER, IN CONTRAST TO THE SHEET (BELOW) FROM THE MACHINE-KEPT LEDGER (12½ x 12 INCHES)

APPROPRIATION LEDGER
CUYAHOGA COUNTY, CLEVELAND, OHIO

ACCT. STATIONERY & SUPPLIES — CODE BB-3
FUND GENERAL — DEPT. AUDITOR

DATE	REFERENCE	NAME	CERTIFICATIONS: CERTIFIED	CERTIFICATIONS: RETIRED	CERTIFICATIONS: UNPAID	EXPENDITURES: AMOUNT	EXPENDITURES: WARRANT	EXPENDITURES: TOTAL TO DATE	APPROPRIATION	FREE BALANCE
		BROUGHT FORWARD								
FEB 1 36	2404	A MASON	3.50							
FEB 1 36	2534	BURROWS BROS CO	50.00							
FEB 1 36	2456	THE DODD CO	25.00							
FEB 1 36	2623	CLEVELAND BLUE PRINT	35.20							
FEB 5 36	3856	THE BROOKS CO	1.60		115.30			.00	10,000.00	9,884.70
FEB 5 36	2404	A MASON		3.50		3.50	0046			
FEB 5 36	2534	BURROWS BROS CO		50.00	61.80	50.00	0048	53.50	10,000.00	9,884.70
FEB 7 36	2623	CLEVELAND BLUE PRINT		35.20	26.60	30.00	0049	83.50	10,000.00	9,889.90
FEB 7 36	2456	THE DODD CO		25.00	1.60	25.00	0055	108.50	10,000.00	9,889.90
FEB 7 36		APPRO TRANSFERRED FROM AUD TEMPORARY HELP $1000.00			1.60			108.50	11,000.00	10,889.90
FEB 9 36	25684	CLEVELAND BLUE PRINT CO PAYMENT NOT ACCEPTED			1.60	30.00	0049	78.50	11,000.00	10,919.90
FEB 9 36	3935	THE BURROWS BROS CO	34.10							
FEB 9 36	4045	C A MEADE	73.60		109.30			78.50	11,000.00	10,812.20

THIS SHEET ITEMIZES AUDITOR'S CODE BB-3, SUMMARY OF WHICH IS INCLUDED IN THE FEBRUARY STATEMENT TO AUDITOR, BELOW

MONTHLY STATEMENT OF CONDITION OF APPROPRIATIONS
SUBMITTED BY AUDITOR, CUYAHOGA COUNTY
CLEVELAND, OHIO

DEPARTMENT COUNTY AUDITOR — FOR THE YEAR 1936 ENDING FEBRUARY 29TH

CODE	ACCOUNT	UNPAID CERTIFIED BILLS	EXPENDITURES	TOTAL USED	APPROPRIATION	FREE BALANCE	PROOF
P 1	SALARY		1,000.00	1,000.00	1,000.00	.00	
T 2	DEPUTIES & CLERKS INCL		19,001.21	19,001.21	22,000.00	2,998.79	
T 2	TEMPORARY HELP		23,752.34	23,752.34	24,000.00	247.66	
T 2	1937 REAPPRAISAL LAND & BLDGS		5,375.27	5,375.27	34,000.00	28,624.73	
BB3	STATIONERY & SUPPLIES	109.30	78.50	187.80	11,000.00	10,812.20	
	TOTALS	109.30	49,207.32	49,316.62	92,000.00	42,683.38	

AUDITOR_____

DEPUTY_____

MONTHLY REPORT (12 x 8 INCHES) SENT TO EVERY DEPARTMENT IN THE COUNTY GOVERNMENT
Note Code BB-3, shown itemized on Appropriation Ledger sheet (middle form on this page)

Formerly the Auditor issued about 12,000 warrants on the County Treasurer each year, against 200,000 now. The organization of the County Relief Administration, and the adoption of the provisions of the Annat Law (housing relief for indigents) by the County Commissioners, as well as vast increases in the lists of statutory welfare obligations such as Soldiers' Relief, Mothers' Pensions, Child Welfare, Blind Relief, greatly increased the services involved.

The major improvements include (1) a change in the method of issuing warrants, from book to loose-leaf, from hand to typewriter; (2) revamping the entire bookkeeping system, including General Ledger, Appropriation Ledger, and Certification Ledger, formerly posted by pen and ink and now by typewriting bookkeeping machines. In the first instance, the loose-leaf warrants are printed five to a page, and a carbon copy is provided for the permanent files. The typing is speedier and improves the appearance of the warrants. In the second instance and under the new mechanical method, the cash balance in any fund account or the unexpended balance in any appropriation account is immediately available by referring to the account ledger sheet, and *the monthly trial balance is now completed on the second day of the month.*

In contrast to the present satisfactory condition, under the old method the bookkeepers were at times unavoidably three weeks in arrears in posting the Journal and General Ledger, and sixty days late in striking a proper trial balance. Information regarding balances in any fund desired by the Auditor was not immediately available, although often needed at a moment's notice. It became necessary, therefore, to accumulate the various unposted debits and credits from the many different sources and tabulate them to establish an approximate balance. This often took from one-half hour to an hour.

Selecting the Machine

Preliminary to installing the mechanical bookkeeping system, a thorough study was made of the accounts and their classifications. To specify in detail the voluminous changes and improvements adopted would entail too lengthy explanation. After our plans were set, the next important subject confronting us was the selection of a machine that would function properly as to accuracy, simplicity, speed and neatness. After careful study and demonstration over a period of several weeks of four different makes of the most prominent machines in use, the latest model Burroughs typewriting bookkeeping machine was selected.

Four women operators now keep all our books in perfect balance and order, including about 30 per cent increase in work caused by the adoption in this county of the housing relief service, and any desired information is available at once. This is accomplished at a direct salary saving of $2,600 a year. Only two ledgers are now kept, namely, the General Ledger, and the Appropriation Ledger. Tumble type loose-leaf sheets 12 inches x 12 inches are used, and are kept in post binders, which are permanently bound at the end of the year.

The work as a whole is based on a daily unit system. Each day, as any transaction occurs, all certifications, credits, and duplicates of warrants drawn, transfers, etc., are placed in a wire basket. The next morning the head bookkeeper segregates the various posting items, and allocates them to the operators, who make a pre-list for each fund and then begin to post. The machine provides a line proof, so each entry is proved as to correctness.

Each machine is equipped with a control bar on which controls are set for a particular form of ledger sheet. As there are several different ruled forms used, we have several extra control bars all set for a specific function. It requires less than one minute to change controls in order to accommodate any given form to be posted. The possibilities of these machines, as governed by the control bars, are so great that they may be used for almost any conceivable bookkeeping purpose, and have indeed saved their cost the first year.

The installation of the machines has also permitted us to issue a monthly Departmental Report for the use of each county department. Under this system the departments are kept informed as to the status of their appropriation funds. These reports, likewise, are completed on the second or third of each month.

Opposition to our plan was encountered at the beginning from employees, but, being fortified with absolute faith in the result of our studies, we did not permit ourselves to be influenced, the result being that every one is now converted to the new method, which has been proclaimed the solution of our problem. The newspapers, the Cleveland Chamber of Commerce, the State Examiners, the Citizens League, and various other organizations and authorities have complimented the Auditor on this accomplishment, and have termed it "a fine example of a government unit using modern accounting machines."

Unsoundness of Tax Limitation on Real Estate

"THE Effect of a Two Per Cent Tax Limitation Law upon Local Government in New York State" is the subject of the Seventh Report of the New York State Commission for the Revision of the Tax Laws, submitted January, 1936. The insistent demand that the tax burden on real estate be reduced has called forth suggestions of several different methods. The method which is the subject of this report is the establishment of a legal limitation upon the total levy that may be made against a single piece of property by all the units of government within which the property is located. While recognizing that certain probable benefits of tax limitation—encouragement of economy; development of new sources of revenue; efficient reorganization of local government functions; improvement of assessment ratios—are important objectives, the Commission emphasizes the folly of saving the property owner money in taxes by wrecking governmental services that contribute to real estate much of its value; or of making up for a reduced tax bill today by an increased tax bill tomorrow.

The experience of other states that have similar types of laws is enlightening in regard to over-all tax limitation. For New York State the study shows the effect of two per cent limitation in 31 towns in 26 counties, where intensive analysis was carried out on different bases of calculation.

The results of the investigation (which is reported in full) are clearly stated, and indicate the unsoundness of over-all tax limitation as a fiscal policy for New York State, for reasons and for considerations that are made plain. The Commission believes that the most effective way of limiting taxes is through control of expenditure, and urges an alternative program toward this end: the establishment of a State Municipal Finance Commission to control the financial acts of political subdivisions; up-to-date budgeting, accounting and independent auditing for every unit of local government; modern debt legislation—purpose, procedure, maturities, redemption—which political subdivisions cannot evade; no increase in state aid beyond that of 1930 except with the Commission's consent; reorganization of county and local governments to increase operating efficiency.

—Legislative Document (1936) No. 54. 368 pp. (Apply to the New York State Commission for the Revision of the Tax Laws, Albany, N. Y.)

The 1936 Model Street Car, as shown on the cover of this issue, was not available when 20 cars of this type were purchased by the Capitol Transit Co. for operation in Washington; but these cars include many features now incorporated in the latest models, and the public likes them

Is the Trolley Car Staging a Real Comeback?

AFTER six years of development, the 1936 "noiseless" trolley will make its debut in Brooklyn, Baltimore and Chicago late this spring. The appearance of the new car is shown by the photograph of a model on the front cover of this issue. Though this car is far superior to its predecessors in operating performance and civic appeal, its entire success turns on its popularity with present and potential customers. It will provide the answer to the question: "Has the trolley car a continuing place in city transportation?"

The Baltimore Transit Co. has ordered 27 of the 1936 model cars. The Chicago Surface Lines, after two years of experimental operation of two modern street cars, has ordered 83 of this latest model and will completely equip one of its heaviest traffic lines with them. For the Brooklyn and Queens Transit Corporation, 100 of the new cars are nearing completion, and within a few months these will be in operation on several of the Brooklyn trolley lines.

The 1936 model street cars are the product of six years of research financed at a cost of $850,000 by 25 of the larger transit companies and a corresponding group of manufacturers in the United States. In 1934 a demonstration car embodying the basic ideas as to what a modern street car should be and do was constructed and placed in operation in Brooklyn by the Electric Railway Presidents Conference Committee, under which this research work was organized.

A prominent operator makes this observation to THE AMERICAN CITY: "True—the old street car is on the way out. Even the street-railway operators agreed the *old* cars must ultimately go. But in their place is coming a new, modern, high-speed, light-weight, streamlined street car equipped to hold its place at the head of the procession in today's fast-moving street traffic, and attractive enough to win back to the street railways many of their former riders who have been using their automobiles for transit."

The new street car is here. It has its friends. Too much money, brains, perspiration and expectation have gone into its incubation during the past six years to justify its being examined with other than a friendly mind. Its developers do not consider it the exclusive instrumentality for surface transit. They believe that all three vehicles—the street car, the gasoline bus and the trolley coach—have their special fields in the transportation system of any large urban area and that the problem in each community is to determine how to integrate the various types of vehicles into the most efficient, unified system of transit to meet the public need.

After five years of research and an expenditure of $850,000 to produce an improved trolley, the Electric Railway Presidents' Conference Committee built and operated this experimental car in Brooklyn during the last year

Features of the New Cars

The design of the new street car goes beyond the sheerly necessary. The immediate needs were quick pick-up, speed, safe, smooth braking, and quiet operation. All these the new car attains. But the operators and manufacturers wisely decided that with so much at stake—including a development expense of $850,000 and a possible new market consisting of the people who drive their own automobiles to work—it was worth while to extend the improvements into the realm of comfort, beauty, and even luxury.

To compete successfully with surrounding traffic for the patronage of an automobile riding public, a quick pick-up was considered a primary requirement. The new car attains 4¾ miles per hour in the first second and a speed of 20 miles per hour in 5 seconds.

Though the car weighs 10 tons less than many other street cars now in operation, it does weigh 17 tons, which is considerable weight to bring to a safe stop quickly. This is done by three sets of brakes: dynamic, provided by the motors acting as generators and the current generated furnishing resistance to the turn of the wheels; magnetic, battery-actuated, which grips the rail with a combined clasp of 13 tons; air, which comes into action when the car has been brought below 5 mph. Finally, there is a hand brake, to be set when the car is parked.

So much for a quick start, a fast run, and a quick stop—of small value in congested districts unless the customers can leave and enter quickly. They can, with the new doors whose very action in "blinking" open induces speedy entry and exit. These doors do not fold back and forth as do the familiar collapsible doors, but slip quickly inside the car. Moreover, they are streamlined with the car and flush with its exterior to improve the appearance. Also contributing to swift handling of the passengers, the entire floor is on one level, with low, wide and comfortably designed steps to the ground. The 100 Brooklyn cars are equipped with turnstiles inside the car and back of the driver's seat, for smooth handling of passengers while the motorman gives full attention to mechanical operation. Seats are provided for 54 to 58 passengers, depending on the arrangement within the car for various cities.

No Vibration or Noise

The vibration chart of the conventional street car is a saw-toothed affair; that of the new car is a straight line, due to the skillful use of rubber in springs and wheels. The springs are thick concentric rings of rubber. The wheel tires which rest on the rail are of steel, and inside the tires are rings of rubber which absorb all track vibrations. These measures to dampen all vibration have by the same token achieved silence. The absence of noise, in fact, is almost the outstanding achievement. All that is left of the old roar, rattle, rumble and shriek is "a singing of the trolley wire," never noticed before.

An inconspicuous opening at the top of the car draws in fresh air. This air is drawn down under the car to a heater, and the warm air enters the car at floor level.

Two styles of luminaires provide three times the usual light—more than 20 footcandles compared with 6 to 8 in present cars. Large windows provide plenty of light by day, and with light, quiet and no vibration, reading is as agreeable as it can be.

In newspaper advertisements that rival in display modern department store copy, the Chicago Surface Lines thus advertises its wares—the 83 cars which will fully equip the Madison Street line:

"These new cars will be watched with interest by transportation engineers throughout the country. This will afford an opportunity to observe this new tool of the industry in operation under all the trying conditions encountered in the streets of the modern large city.

"Quieter than automotive vehicles of equal carrying capacity, providing a smoother and more comfortable ride, and operating at lower cost and with greater efficiency, the new cars will make possible an authoritative determination of the relative value and feasibility of rail and automotive equipment for various classes of service."

This is fair enough, and mayors, city managers, councilmen, commissioners, chambers of commerce, civic and business organizations also will observe with due consideration the second-blooming of the street car and its endeavor to hold its own with the motor-bus in attracting both the regular trade and the automobile-riding worker. The country can use 20,000 of these cars, it is said, and they will consume some 4 billion kwh per year.

The Public Is the Jury

Most municipal officials will probably feel that in this trial the public has everything to gain and is the determining factor. If the new cars win full loads and the operators fuller pockets, it will mean that the people like the faster, lighter, quieter, brighter, handsomer vehicle. If the public is indifferent to the improved service, then the street car is indeed doomed, and so are the tracks, the wire, the biggest power load, and the entire visible investment of the transit companies. That these companies and their managements believe that the public will react favorably to the 1936 models in street cars is indicated by the drive and enthusiasm with which transit men are straining to get the new cars on the street at the earliest possible date.

Obviously, this is welcome news to city officials. Every one recognizes that the old-fashioned trolley with its clatter, jerks and pokey pace has outlived its usefulness in the streets of modern cities. But there has not been such complete agreement as to what is to take its place. Some have maintained that the motor-bus is the answer to modern urban transportation. More recently the trolley coach has attracted the spotlight of attention in many cities. And now comes the metamorphosed street car — sleek, silent and speedy, with capacity to handle the densest traffic at minimum cost and with minimum street confusion.

Up to the present writing there has not been an opportunity for a practical demonstration that would enable city officials to judge intelligently the respective claims of the backers of each type of vehicle. With the 1936 trolley about to appear on the streets, it is possible to look forward to early clarification of the urban transportation situation.

If the trolley car has a continuing place in city transportation, the sooner this is proved by practical experience, the better it will be for every one concerned with city development and progress. The significant fact in the imminent introduction of the 1936 model trolleys seems to be that the whole art of public transportation, regardless of the particular vehicle used, is in process of entering a cycle of rapid technical improvements which should be more than welcome to the public and to city officials alike.

Tax Lien Foreclosure Program Aids City Planning in Yonkers

By THEODORE T. McCROSKY
Planning Director
and
CHARLES L. CURRAN
Assistant Corporation Counsel, Yonkers, N. Y.

A RECENT article* in THE AMERICAN CITY on tax-delinquent lands makes it timely and interesting to report the policy of the city of Yonkers with respect to tax lien foreclosures.

Yonkers is one of the many cities which benefited in the boom by great building activity and which have suffered during the depression from the evils of excess subdivision and its inevitable aftermath of high tax delinquency. There are, in round numbers, 25,000 vacant parcels of land in the city, as against 17,000 improved properties.

Yonkers operates under a tax lien law† that provides for lien sale not later than one and one-half years after the close of the fiscal year in which the taxes become delinquent. Liens not purchased by private lien buyers must be bid in by the city at the maximum statutory interest rate of 12 per cent. The first lien sale under this law was held in 1919, and approximately 3,000 of the liens acquired in that year are still in the possession of the city. Each successive sale has swelled the number of city-held liens until at the present time the total stands only a little short of 12,000. As nearly all of these are on unimproved property, the city now holds liens on almost half the vacant parcels. Though this may appear to be a staggering amount of property, its assessed value is actually less than 3 per cent of the total for the city. While this percentage is small, the steady accumulation of subsequent taxes over a period of years has become a serious problem.

As long as a lien is held by the city, these subsequent taxes go unpaid and have to be added with interest to the face of the lien. Properties long under lien to the city have therefore hopelessly large accumulations of arrears, exceeding in many cases the assessed valuation itself. Hence owners cannot possibly sell these old-lien properties or obtain financing for improvements, and have no incentive whatsoever to pay off the arrears—even in cases where they can afford to do so. Furthermore, the city charter contains no provision for the compromise of taxes other than those included in the face of the lien.

The only practical way, therefore, to restore the potential usefulness of these properties is through foreclosure by the city. With these considerations in mind, the Planning Commission recommended the foreclosure of all liens upon properties that are fit for any reasonable use. The resulting program has two parts: first, foreclosure of parcels that can be used to good advantage by the city for public purposes; and, second, foreclosure of parcels with a view to their resale to private parties willing and able to pay taxes. As a necessary preliminary step, the Planning Commission prepared a large-scale map, four years ago, showing all city-held tax-lien properties in color. It has been kept up-to-date by adding parcels upon which liens have been purchased by the city at the successive lien sales, using a different color for each year.

Foreclosure for Public Use

The first part of the program was then initiated by studying the map to discover properties that could be used by the city. This had an important place in the preparation of the Master Plan. With a knowledge of established needs of different parts of the town for parks, playgrounds, school sites, etc., it was possible to prepare a well-coordinated set of recommendations for meeting the property requirements of the city for a long term of years. These recommendations are now an intrinsic part of the Master Plan, and favorably situated parcels for particular purposes have been referred to the Corporation Counsel for foreclosure. It was found that all the playground sites and practically all the school sites that will ever be required may be obtained by foreclosure of these city-held tax liens. In practice, alternate groups of lien parcels in the same vicinity are customarily recommended in order to allow for the possibility of redemption in one or more cases by the owners if they so desire. Close cooperation and aggressive action by the Corporation Counsel's office have resulted in very real achievements. Recent acquisitions by foreclosure include the following:

Combined park and athletic field of 14 acres
Residential park of 7 acres
Residential park of 2.5 acres
Addition to existing park
Site for Shakespearian garden
Site for Park Department tree nursery
School playground
Several groups of parcels needed for street extensions
Three parcels needed for a sewer location

Many large properties in acreage were found that have paid no taxes for upwards of twenty years, are still legally in private ownership, but are being used as public parks or athletic fields "by consent of the owners." The need for their use as parks is clearly demonstrated, and the anomaly of private ownership and non-payment of taxes is being corrected by foreclosure.

Foreclosure for Resale

The second part of the program—foreclosure with a view to resale—is also going forward rapidly. In this case, permanent acquisition by the city is not contemplated. The purpose of instituting foreclosure actions is to rehabilitate the property by clearing its title and plac-

* "Making Assets of Tax-Delinquent Lands," by Frank Moore, Executive Secretary, Association of Towns of State of New York; February, 1936.
† N. Y. Laws 1917, Ch. 725, as amended by N. Y. Laws 1919, Ch. 32 and 344.

ing it in the hands of some one sufficiently interested in its potentialities to make tax payments, or alternatively, as will be explained, to hasten tax payments by the present owner. By restoring these properties to the active tax rolls, future tax delinquency is reduced.

In the case of old-lien parcels, on which no taxes have been paid for six years or sixteen years or in a few cases sixty years, it is reasonable to assume that the owner has lost his pride of ownership in his property. In point of fact, the owner of record is frequently unknown. For years no tax bills have been sent out—far less collected—and yet the property value has been included each year as part of the taxable assessed valuation of the city. Philip H. Cornick, of the Institute of Public Administration, makes the following significant comment on cases of this kind: "Many vacant lots now in arrears . . . have acquired without legal warrant, almost the same status as tax-exempt properties. The only difference is that on the latter, taxes are neither levied nor collected; on the former they are levied but not collected."

Non-payment of taxes on unripe vacant land sometimes becomes a "racket." The owner allows taxes to go unpaid and lets the city buy the lien, knowing full well that he retains the privilege of petitioning for compromise of the lien as soon as he finds a prospective purchaser. If he does *not* find a purchaser within a few years, the subsequent taxes and interest mount so high that, as a rule, he is no longer able to clear up his debt to the city. By instituting foreclosure proceedings early in the game—before heavy arrears have time to accumulate—the city can put a stop to the racket. The tax-shirking owner must either pay up or yield his property to some one who is willing to assume the responsibility that goes with ownership. Foreclosures, therefore, are not being confined to old-lien parcels. Experience with more recent liens is proving that many owners, as soon as they are served with a notice of foreclosure, will hurry to City Hall and pay up in full. However, every consideration is shown to the bona fide owner actually in financial distress. The city of Yonkers has no intention or desire to capitalize the misfortunes of its people, but when there is reason to believe that an owner can pay taxes but prefers to let them ride, it is entirely proper to take forthright action.

Planning Commission and Corporation Council Cooperate

By the combined initiative of the Planning Commission and the Corporation Counsel's office, over 900 property foreclosures are now in process. More are being undertaken as fast as title searches can be completed. Legal procedure is simplified and costs reduced by combining groups of parcels in one action. Many of the foreclosures, as has been pointed out, are on properties that the Planning Commission desires to have the city obtain as sites for needed public facilities. The majority, however, fall within the second part of the program. They have been instituted in order to rehabilitate old-lien properties by resale for private use, and to hasten tax payments on recent lien properties before they become hopelessly in arrears.

By continuing the present vigorous policy along these several lines, it is anticipated that a large proportion of the liens on parcels that have reasonable merit for either public or private use will be cleared up within the next few years.

ONE OF THE PROPERTIES IN YONKERS ACQUIRED BY TAX LIEN FORECLOSURE, AND SUBSEQUENTLY IMPROVED AS A PARK

Toledo Street Railway Gains; Wages up to 1929 Level

TWO important developments in the operations of the Community Traction Company in Toledo, Ohio, were recently announced. A report of March operations submitted by E. L. Graumlich, Street Railway Commissioner, revealed a 5½ per cent increase in revenues over the same month last year and a slight gain over the preceding month. The number of passengers carried was 17,887 greater than in March, 1935. It was the best March volume since 1930. A new wage contract which increased wages to the 1929 level has been completed between company officials and employees.

New Municipal Electric Plant for Cushing, Oklahoma

By W. R. HOLWAY
Consulting Engineer, Tulsa, Okla.

THE new diesel electric plant placed in operation at Cushing, Okla., early in March embodies a number of modern engineering features, and an unusual amount of attention has been paid to the architectural features of the entire plant, consisting of a power house, a garage-warehouse, and a cooling tower, all set in well-landscaped grounds occupying a block not far from the center of the city.

Power Units and Exciters

The prime movers consist of three vertical 6-cylinder, 4-cycle, single-acting full diesel engines manufactured by McIntosh and Seymour, each 750 bhp, 225 rpm; and each driving a 625-kva, 2,300-volt, 3-phase, 60-cycle Electric Machinery Manufacturing Co. alternator. The engines are totally enclosed.

There are no exciters connected to the individual units. Excitation is furnished by two high-speed General Electric motor-generator sets, to one of which is connected a gasoline engine for emergency.

Fuel Oil

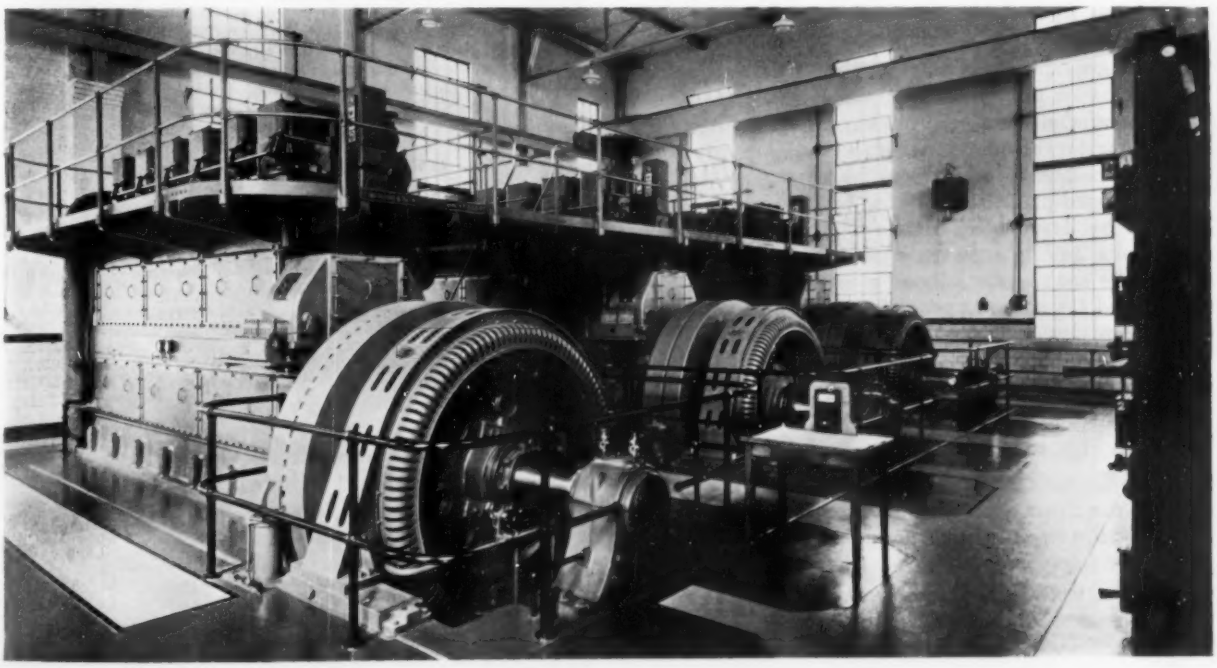
Fuel oil is piped from a refinery directly across the street to two underground 15,000-gallon steel storage tanks, protected on the outside by concrete. The oil is heated by hot-water coils connected to the circulating water system of the plant. A De Laval centrifuge purifies the oil as it is being transferred from these underground tanks to a 2,000-gallon tank in the basement of the power-plant building.

ARCHITECTURAL ATTENTION WAS GIVEN TO THIS DIESEL PLANT

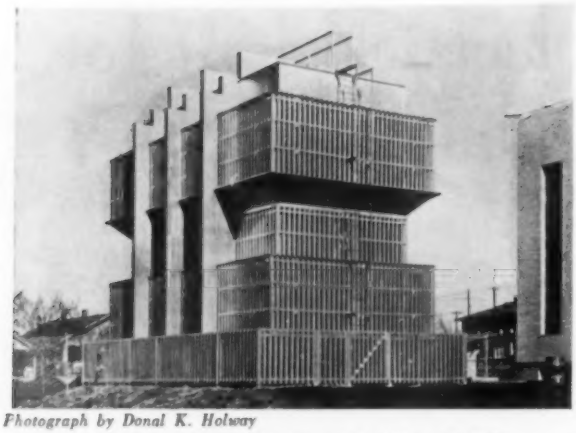
An automatic motor-driven pump transfers the fuel oil to the day-storage tank, from which it flows by gravity to the Bosch pressure pumps built into the engines. The insurance of continuous operation is secured by a system of duplicate piping throughout the plant.

Cooling System

Cooling water for the engines is pumped through the engine jackets and through a closed system of heat exchangers located in the cooling tower adjacent to the build-



TRIM GENERATING ROOM WITH THREE 750-HP DIESEL-ELECTRIC UNITS



Photograph by Donal K. Holway

COOLING TOWER OF CUSHING, OKLA., PLANT

ing. This water is made up chiefly of rain-water collected on the roof of the building. Raw water is pumped over the cooling tower, collected in a concrete basin beneath, and constantly re-circulated.

The tower itself was built by the Schubert-Christy Co., and was specially designed to be in keeping with the architecture of the power-plant building.

Waste-Heat Boilers and Exhaust Stacks

Edgemoor waste-heat boilers of the thimble-tube type were placed in the exhaust lines from the engines to serve two purposes—to silence the exhaust from the engines and to provide steam heat for the building through unit heaters located in the walls.

The exhaust stacks in the building are of an unusual design. Rectangular steel stacks are built in the heavy pilasters at the rear of the building, with an air space left around each stack. This construction completely silences the exhaust from the engines and overcomes one of the common objections to diesel plants.

The photograph of the generating room shows the operator's desk with the Alnor pyrometer, which indicates the exhaust temperature of each of the eighteen cylinders.

The interior of the power-plant building contains a roomy office and a locker room for showers. The floors are red-topped painted and waxed concrete with walkways outlined by heavy black lines. The wainscoting of the white walls is of light-tan dull-glaze tile, marked with black trim. The engines are painted a battleship gray. Space is provided for an extra generating unit to be installed at some future time.

Switchboard

The switchboard in this plant is a modern steel dead-front G.E. switchboard equipped with automatic solenoid-operated circuit breakers controlling all feeder circuits. In it there are three generating panels, one regulating and totalizing, two street-lighting, seven feeder panels, two blank panels for future use, and one overhead swinging bracket.

All the street-lighting transformers for the White Way and for overhead lighting are in the basement of the building and are controlled from the switchboard. Two similar banks of transformers supply power for the station and auxiliary equipment, one a duplicate for emergency use. A Model-A Telechron master clock maintains constant average frequency.

Distribution System

All power lines leave the building in underground conduits. Lead-sheathed cables, laid in fiber ducts encased in concrete, lead to the take-off poles adjacent to the property. The distribution system is a three-phase system with seven circuits, which can be sectionized into any number. The power generated is 2,300-volt, and the expected peak load is 800 kw. In the distribution system are 100,000 pounds of copper, about 2,000 Texas yellow pine poles averaging 35 feet in height, 250 overhead street lights, and 200 White Way standards of hollow-spun concrete with 11-foot light center, purchased from Line Material Co. Cushing is a city of approximately 10,000 population and the number of customers now served is 2,010, with applications from more.

The rates charged formerly by the power company were reduced approximately 25 per cent by the city. Domestic rates are as follows:

		Optional:	
First 100 kwh	$0.05	First 50 kwh	$0.05
Next 400 kwh	.04	Next 50 kwh	.04
Over 500 kwh	.03	Next 100 kwh	.03
Minimum $1 per meter per month		Over 200 kwh	.02

The plant and distribution system were constructed, after the usual litigation, extending over a period of five years, under a PWA loan and grant of $350,000. The author designed the plant and supervised construction. The architect was John Duncan Forsyth, Tulsa. The City Manager of Cushing, J. W. Flint, was largely responsible, with the other city officials, for carrying through this project—scheduled for formal opening May 1.

Municipally Owned Utilities

Of the 930 cities over 10,000 reporting on the ownership of utilities as shown in The Municipal Year Book for 1936,* 70 per cent reported owning water works, 28 per cent airports, 14 per cent electric light plants, and 12 per cent markets. Five more cities reported the ownership of electric light generating and distributing systems than in 1935. Of the 131 cities operating electric light plants, 95 are in the 10,000 to 30,000 population group. Only 13 cities stated that they own electric distribution systems which purchase power from private sources. All cities over 200,000 population report owning one or more utilities, and only four cities from 100,000 to 200,000 reported no utilities owned by the city.

Of the 930 cities of over 10,000 population which reported, 187, or 20 per cent, own no utilities, and 152 of these are in the 10,000 to 30,000 population group. The three largest cities which reported ownership of street railways are Detroit, New York and San Francisco. Philadelphia is the only city over 500,000 to own a gas plant. Electric light plants are owned and operated by the following cities with more than 200,000 population: Detroit, Cleveland, Los Angeles, Columbus and Seattle.

OWNERSHIP AND OPERATION OF UTILITIES AS REPORTED BY 930 AMERICAN CITIES

Type of Utilities	All Cities over 10,000	Over 500,000	200,000 to 500,000	100,000 to 200,000	30,000 to 100,000	10,000 to 30,000
Abattoir	36	1	0	3	14	18
Airport	261	12	22	27	59	141
Electric Distrib.	13	1	0	0	3	9
Electric Light	131	3	2	5	26	95
Gas	30	1	3	3	3	20
Gas Distrib.	4	0	0	0	1	3
Market	108	7	14	12	36	39
Port	60	5	10	13	15	17
Street Railway	14	3	3	2	2	4
Water Works	658	12	25	42	153	426
No Utilities	187	0	0	4	31	152
Not Reporting	30	0	0	2	9	19

* See page 121 of this issue.

What Parking Meters Earn And How They Do It

PARKING meters have already been installed in Oklahoma City, Dallas, El Paso, and St. Petersburg, Fla., and Miami, with many other cities making practical investigations of this new method of solving a universally difficult problem at a profit.

One of the big cities in the East asks: "Do they really gross 40 to 50 cents a day? At 5 cents per hour, this would mean almost continuous use of every meter."

The answer is that 5 cents is a service charge for the time limit placed on that space, whether 10 minutes or 60 minutes. If it is a 10- or 15-minute zone at the bank, the nickel charge is for this period. Elsewhere, it may be for 30, 45 or 60 minutes. In the present installations, not more than half the meters are in the 60-minute zones. In each zone the meters are set for 3 minutes more than the legal period, so that the parker has 3 minutes' grace.

Thus, in a 15-minute zone there are not quite four parking periods in an hour, which would give 13 to 18 cents per hour. If used three times an hour for 11 hours, the revenue would be $1.65. The hour meter used 11 times would gross 55 cents.

In the original installation, the meters in an hour zone in the vicinity of a bank were bringing in $1.00 to $1.40 per day, because the users stayed about 10 minutes each, the next arrival dropping in his nickel to make sure. The meters do not have to complete the cycle before they can of meters, but more than doubled the gross incomes, keep- expired, another nickel can be inserted and the lever turned, and back goes the hand to the time allowed for that parking zone.

Earnings in Oklahoma City have been as follows, according to F. G. Baker, City Auditor:

1935	Operating Days	No. Meters	Revenue	Average Per Meter Per Day
July	5	174	$ 358	$0.41
August	27	174	1,980	.42
September	25	174	2,185	.50
October	27	174	2,312	.49
November	25	174	2,072	.48
December 2-18	15	174	1,255	.48
December 19-20	9	475	1,882	.44
1936				
January	26	475	4.970	.40
6 months' revenue			17,014	
38,201 meter days				$00.44½
60,967 meter days to March 25 (now 524 meters)				.434

It will be noted that nearly tripling the number of meters did not merely spread the income out over a larger number of meters, but more than doubled the gross incomes, keeping the average receipts above 40 cents per day.

Says Mr. Baker:

"It is my opinion that it has been much easier to control the downtown traffic problem since Park-O-Meters were installed, as I have observed very little double-parking since the installation and I am sure that much of the cruising in trying to find parking space has been eliminated. In this connection, I am satisfied that the big majority of the motoring public is very enthusiastic about the use of Park-O-Meters, and I also believe the business element is very well satisfied with the new method of handling the parking problem."

Dallas Installations Successful

Earnings at Dallas, Texas, to January 1 are submitted by Hal Moseley, City Manager, together with a meaty comment on the public's willingness to pay this charge.

Date	Average No. Meters in Operation	Total Income
November 4 through November 9	398	$1,013.15
November 12 through November 16	570	1,249.40
November 18 through November 23	668	1,524.75
November 25 through November 30	978	1,726.35
December 2 through December 7	990	2,266.15
December 9 through December 14	1,000	2,402.25
December 16 through December 21	1,000	2,680.65
December 23 and 24 only	1,000	1,011.50
December 26-31	1,000	2,184.30*
	Total	16,058.50

"The average income per meter per day over the above period on the total meter days of operation is 40½ cents," says Mr. Moseley. "Of course, the greatest benefit derived from the use of these meters is the very marked relief afforded traffic movement in the downtown area, but the revenue derived from their operation will enable us to make other improvements which will afford still greater improvement in our traffic problem."

Current Status

Oklahoma City's 522 meters have all been paid for out of earnings and grossed $5,765 in March. Fifty cities have investigated the system.

The 1,000 meters installed by Dallas in November, 1935, have been paid for, and 500 installed since March this year will be paid for by December. Forty-four cities have investigated.

The 150 meters at St. Petersburg, Fla., should be paid for by October. They earned $1,511 in March. Ten cities have investigated.

The 504 meters of El Paso, recently installed, earned $2,856 in March and will be paid for January 1, 1937. They have been inspected by 14 cities in 10 states.

For Traffic, Not for Revenue

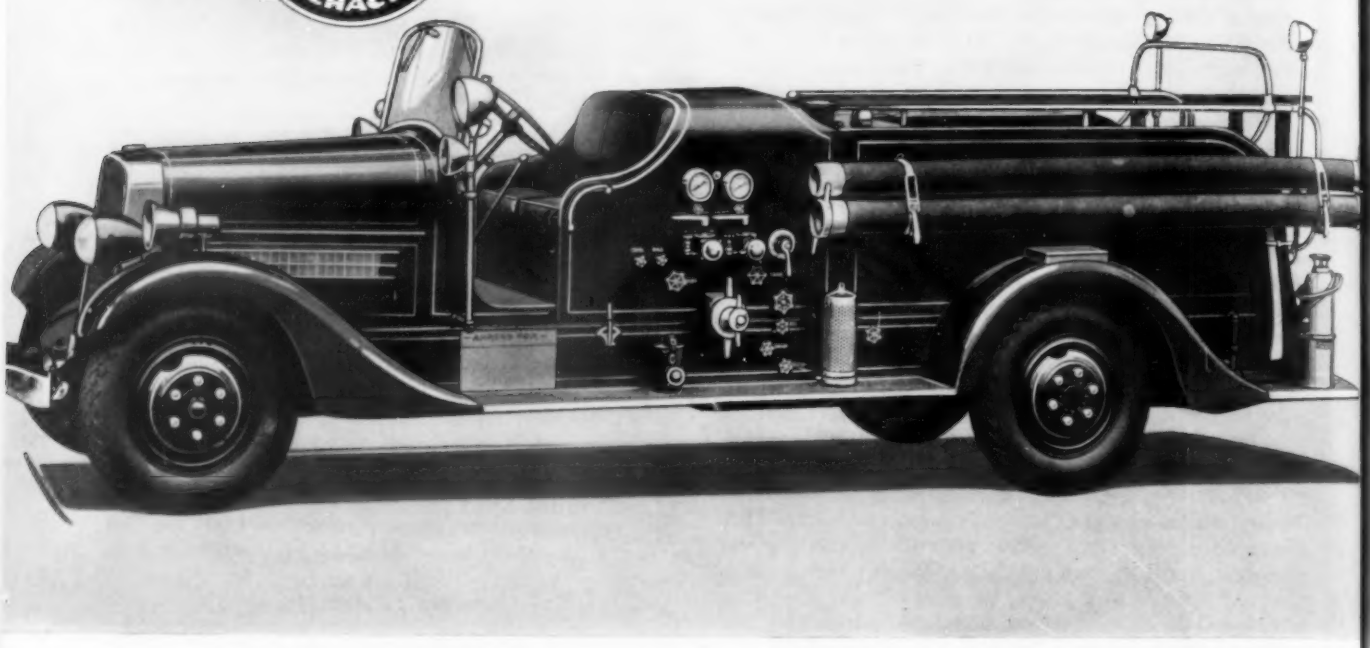
The American Automobile Association, though it has looked into the matter, has adopted no policy toward parking meters, believing that they should be acted on locally by the individual motor clubs. It is obviously important that city officials regard these meters as a means to a solution of the parking problem in congested areas and not, primarily, as a new source of revenue. The automobilist must be permitted a choice between a moderate fee for the maximum convenience and no fee for less convenient parking space.

March earnings against population in these four cities amounted to 3.1 cents, 4.3 cents, 3.8 cents and 2.8 cents.

* Fred Collum, Assessor and Collector of Taxes, states, "No receipts on December 25."

Announcing

THE UNION OF TWO GREAT COMPANIES!



A Look At The Past Foretells A Brilliant Future...

In the same spirit of progress in which each was founded, two great institutions—The Ahrens-Fox Fire Engine Company and The LeBlond-Schacht Truck Company—combine to render even greater service to those who use their products!

One hundred and six years of combined experience, plus broadened manufacturing facilities, a strong financial background, and a stronger personnel than ever as the executive personnel of both companies—including Mr. Fox and Mr. Ahrens, nationally known in the industry—will continue.

The management pledges itself to a continuation of the unparalleled Ahrens-Fox service and through this merger of the ability and experience of both organizations a constant development of the present highly efficient Ahrens-Fox fire fighting equipment.

Any community which needs fire fighting equipment—standardized or special—will find that Ahrens-Fox satisfies every requirement!

THE AHRENS-FOX FIRE ENGINE COMPANY

CINCINNATI, OHIO

• *Modern streamlined equipment for this modern day of fire fighting...*

Replacement of Obsolete Fire Apparatus

IF equipped with obsolete and undependable apparatus, fire departments are crippled fighters, and very expensive at that, for, as everyone knows, 90 per cent of the cost of the paid fire department is in salaries, and less than 10 per cent is in the equipment.

There is a well-grounded feeling in certain quarters that fire trucks, unlike most other trucks, do not receive very hard usage. It is true that fire apparatus does not accumulate mileage in the manner of an inter-city truck. But half of the 500 to 1,000 miles it runs per year is traveled at top speed, with the driver laying on the whip.

In addition to the distance traveled by the wheels, there is the distance traveled by the engine and pump in action at a fire—fast enough, it is said, to drive the truck up a 4 per cent grade in high gear hour after hour. What it means to subject the power unit to such sustained hard service is indicated by the fact that engine manufacturers rate their engines at the "peak" speed, and for sustained operation recommend a speed 20 per cent lower than the rating figure.

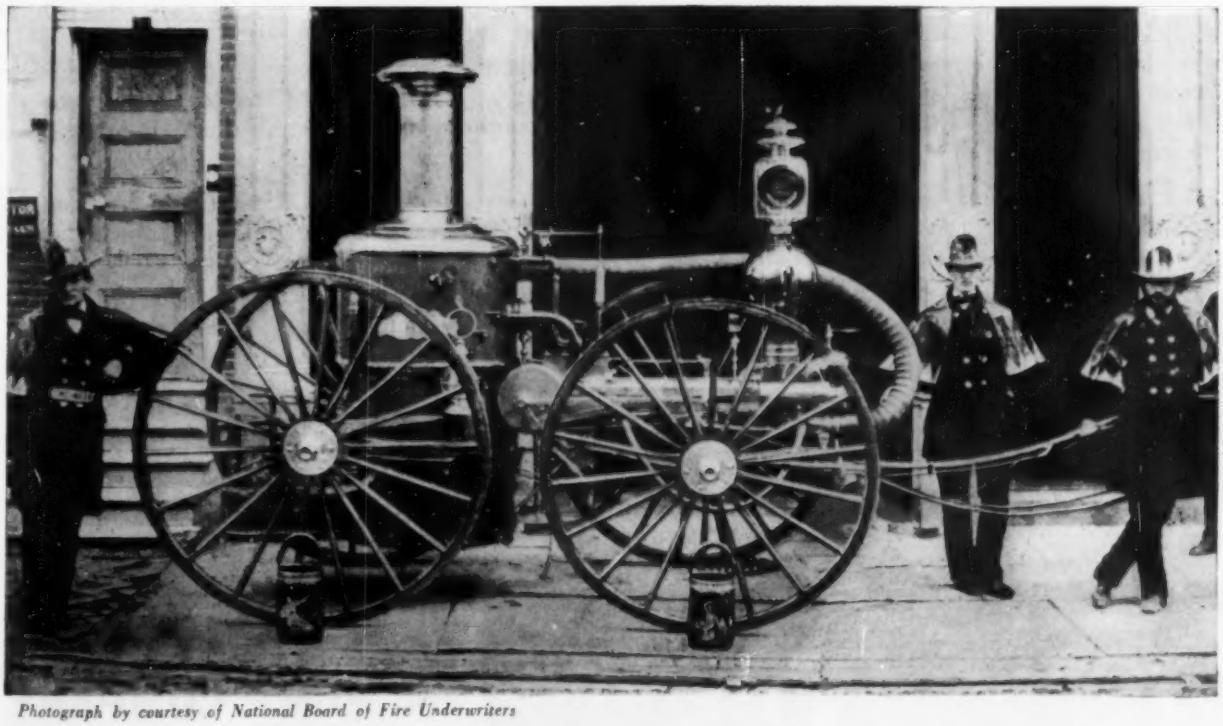
In addition to replacement whenever the old truck loses efficiency or a new design or type is obviously much more certain and safe to the men as well as to the town, there is need to provide sufficient apparatus to put all the men in action should the occasion arise, off-shift as well as those on regular duty.

As a matter of common safety, the National Board of Fire Underwriters recommends one pumping engine in reserve for each eight engines in regular service, and one ladder truck in reserve for each five in regular service. Most of the larger cities more than maintain this ratio as regards pumping engines; but half of them have no ladder trucks in reserve.

Common sense dictates that water towers 30 to 50 years old, as many are, should be scrapped; that ladder trucks 15 to 25 years old and engines 15 years old should be replaced or at least consigned to reserve.

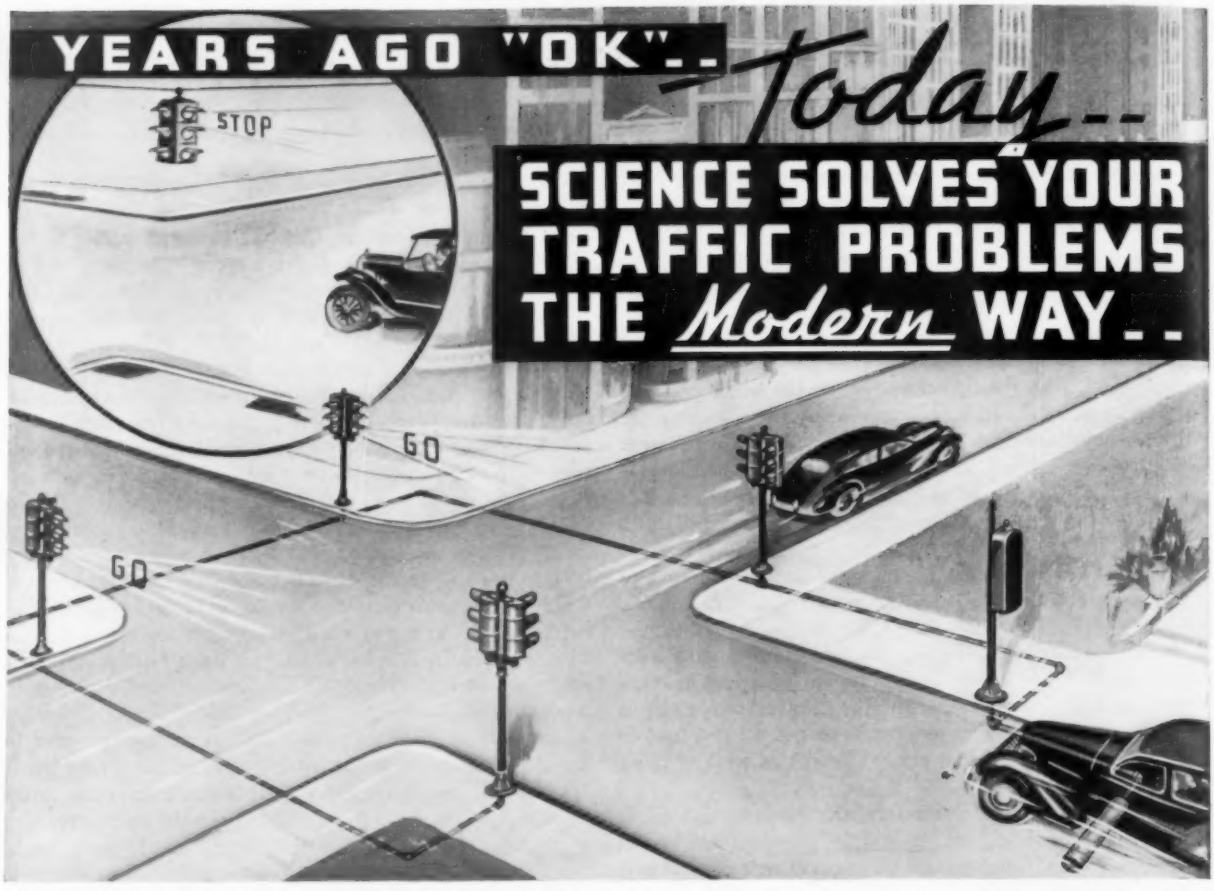
The matter with fire apparatus in most cities is that the change-over from horse-drawn to motor-operated equipment was made grudgingly and gradually, with a long hangover of ill-assembled apparatus. Frequently one piece of motor apparatus was purchased to replace two pieces of horse-drawn apparatus. Now is the time for cities to develop full apparatus strength and in addition to put the entire off-shift in operation in time of severe fire or conflagration, and to have this shift on effective duty at home when the regular force is sent for by a neighboring town.

The idea of rendering mutual aid in case of fire in any of a group of neighboring towns is gathering force. In a number of regions carefully worked-out schemes have been developed to render this aid without leaving towns devoid of protection in case of a call. To name only two such arrangements: Westchester, N. Y., has a mutual-aid scheme; the Fairfield County (Conn.) Fire Chiefs' Emergency Plan is another. Both these plans, and all such plans, aim to avoid stripping the areas of fire companies. These plans nevertheless and of necessity must leave some of the towns with insufficient protection. There should be reserve fire apparatus. Any emergency plan or mutual-aid plan should have as its backbone sufficient apparatus so that adequate protection can be maintained by off-shift supported by volunteers.



Photograph by courtesy of National Board of Fire Underwriters

This apparatus of the 60's has long since been retired, but there are thousands of pieces of obsolete fire apparatus still in service that should be promptly replaced with up-to-date equipment



The upper corner shows a car held up—NOT BY CROSS TRAFFIC—but because the traffic signal is red. There is no cross traffic, yet the driver is forced to wait until the signal completes its cycle before he obtains the "go" signal.

In the second illustration the car immediately obtained the "go" signal, although the conditions were identical. This intersection, however, was equipped with a "TOKHEIM" magnetic traffic-operated signal system. The driver, though unaware of it, changed the signal himself when he drove over the magnetic detector installed under the pavement.

UNSEEN, UNHEARD, but on the job twenty-four hours a day, the TOKHEIM system controls the traffic efficiently and safely, eliminating all unnecessary delays. The magnetic detector is under the pavement and cannot be affected by rain, snow, ice, tractor lugs, snow plows, etc.

This new type of signal was developed to meet the demands created by modern traffic conditions. Long experience in the manufacture of traffic equipment and familiarity with traffic problems has shown that different arrangements are required to effectively meet different traffic problems.

TOKHEIM SIGNAL EQUIPMENT is flexible, and can be installed to meet every traffic problem. It is correctly designed by engineers long familiar with traffic conditions and requirements, and manufactured by a large substantial company.

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Proposed New Charter for the City of New York

Important Changes in Governmental Structure Recommended by Charter Revision Commission

IF approved by majority vote at the general election next November, the new charter outlined in the accompanying diagram will become effective in the city of New York on January 1, 1938. The complete text released April 27, 1936, in a 200-page pamphlet, represents much painstaking effort by the New York City Charter Revision Commission, appointed by Mayor LaGuardia on January 12, 1935, under authorization of Chapter 867 of the New York State Laws of 1934.

In submitting its preliminary report and draft of the proposed charter at this time, the Commission is affording opportunity for the expression of public opinion on its proposals, and possible modification thereof, in advance of filing the definite document which must be submitted to the electorate without change.

Excerpts from the Commission's summary of the proposed charter follow:

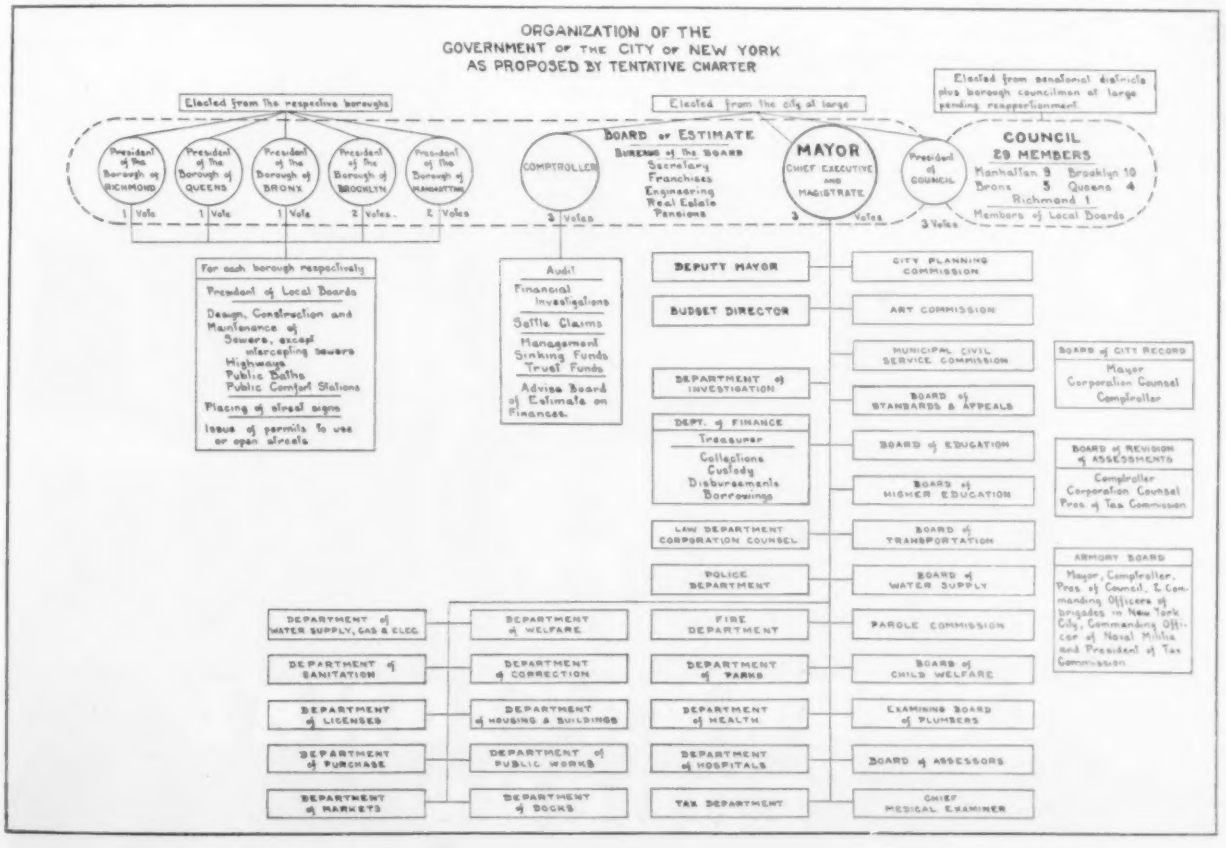
The proposed charter provides for the election of the Mayor, Comptroller and President of the Council by city-wide vote and of the five borough presidents by borough-wide vote.

It continues the Board of Estimate composed of the above elected officials with the same distribution of votes as at present.

It creates a Council, of smaller size, to take the place of the Board of Aldermen. Councilmen will be elected by senatorial districts, with two additional Councilmen-at-large each for Brooklyn, Queens and The Bronx, pending reapportionment of the senatorial districts. Richmond will have one member elected at large in any case.

The Commission was unanimous in its conclusion that the question of the election by the Council by proportional representation should be submitted to the electorate. It is accordingly submitting the question for determination by the electorate as a separate question without recommendation for or against the proposal. If proportional representation is approved, Councilmen will be elected by borough-wide election, each borough electing one Councilman for every 75,000 votes cast.

The relative functions of the Council and the Board of Estimate are altered in several important respects. The Council is the legislative body and is vested with the entire legislative power of the city. All municipal legislation is to be by local



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Many of the toughest hauling assignments in the world fall to *International* Six-Wheel Trucks. The contractor knows from experience that he can count on Internationals for power, stamina, and economy. He knows that International service will keep them on the job. Whatever his work—from building a dam to mastering the remotest oilfield—he feels *safe* with Internationals.

You are in a special class if you use trucks like these, but no matter what your hauling requirements, *any* International will give you *heavy-duty stamina in proportion.* There is *extra* all-truck value in all the 28 International models, down to the Half-Ton chassis priced at $400 f.o.b. factory.

Write for the 32-page catalog on the International Six-Wheelers—the Half-Ton folder—or information on any intermediate size. The nearest Company-owned branch or International dealer is at your service.

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Illustration: *International Dual-Drive Six-Wheel Truck, Model C-55-F, maximum carrying capacity 23,000 lbs. International Six-Wheelers, Dual-Drive and Trailing-Axle, range from 11,400 lbs. up. Wheelbase lengths 168 to 244 in., permitting bodies for a wide variety of application.*

INTERNATIONAL TRUCKS

law, rather than by ordinance, and local laws may be initiated only in the Council, which will alone constitute the local legislative body under the City Home Rule Law. The primary function of the Board of Estimate, on the other hand, is to direct the business affairs of the city. It will have no control over legislation except that local laws having to do with certain subjects directly related to the organization and administration of the government and amendments to the charter require its approval. It also passes upon the expense budget as submitted by the Mayor and the capital budget as submitted by the City Planning Commission. Local laws may be vetoed by the Mayor subject to the power of the Council to pass them over such veto by a two-thirds' vote.

The Mayor, as at present, will appoint and remove all heads of departments and all appointive city officers whose appointment is not otherwise provided for. The duties of the President of the Council are substantially the same as those now exercised by the President of the Board of Aldermen. In the case of the Comptroller, to avoid his being in the position of auditing his own administrative department, as well as to give him more time for his most essential functions, the proposed charter transfers to a new Finance Department, under the control of a City Treasurer appointed by the Mayor, the collection of taxes and other revenue, the borrowing of money and the disbursement of city funds. To relieve the Mayor from the excessive burden of routine duties, provision is made for the appointment of a Deputy Mayor, to whom he may delegate any except his most important functions. The Sinking Fund Commission is abolished and its functions transferred in part to the Comptroller, who becomes sole trustee of the sinking funds, and in part to the Board of Estimate, which will control city real estate.

Public Works

With respect to borough government, the Commission is satisfied that there exists in a large part of the city an overwhelming sentiment not only for borough representation on the Board of Estimate but that strictly local improvements, paid for by assessment on the homes of the people in the respective neighborhoods, be entrusted to local officers readily accessible and responsible to the people affected. Accordingly, the Local Improvement Boards are continued and there is left in the hands of the borough presidents the construction and maintenance of local street and sewer improvements. On the other hand, intercepting sewers and sewage-disposal plants, because of their relation to a city-wide service, are continued under a central department, and since they involve principally an engineering project, are placed under the new Department of Public Works. This department will construct public works other than subways, docks, construction in parks and for the water supply. It will also construct all public buildings except schools. This department will have the maintenance of such buildings except schools, hospitals, prisons, police stations, fire houses, public health stations, and incinerators, which are to be maintained by the appropriate departments.

The new charter proposes a central Department of Housing and Buildings, with a commissioner supervising its entire operations but with a representative in each borough clothed with final authority, reviewable only by the Board of Standards and Appeals, which is continued with functions substantially as at present. In this central department will be a bureau of housing under a deputy commissioner, which will not only administer the work of the present Tenement House Department, but will have jurisdiction over all completed dwellings.

The structure of the other administrative departments has not been greatly changed. The Commission carefully considered various proposals for the consolidation of departments but, with the exceptions noted, concluded that any gain that might result therefrom would be overbalanced by the danger of creating units so large that they would be unwieldy and would impose on commissioners duties too various to be efficiently administered.

City Planning Commission

The proposed charter provides for a City Planning Commission consisting of the Chief Engineer of the Board of Estimate and six members appointed by the Mayor for overlapping terms of eight years so as to remove them as far as possible from political control. The primary purpose of this responsible, independent commission is to guide and influence the city in its development and future growth. The Commission will make, and modify when necessary to meet changing conditions, a master plan embracing a long-range program for the physical development of the city, including streets, bridges, parks, transportation lines, schools, fire houses, police stations, hospitals, and so forth. It is also to be the guardian of the official city map, and is given jurisdiction over zoning. It will prepare the annual capital budget and a program of capital expenditures for six years. Upon approval of the capital budget by the Board of Estimate and adoption by the Council, the capital budget will control capital expenditures during the year, except that ample provision is made for emergencies. All proposals for improvements or for changes in the city map or zoning regulations must first be referred to the Planning Commission. If approved, the Board of Estimate may adopt them by majority vote; if not approved, twelve affirmative votes in the Board are required. Thus the Board of Estimate, consisting of the elected representatives of the people, is given the final decision as to the projects to be adopted, but the function of planning and recommendation is given to a non-political, full-time body whose decisions cannot be lightly overridden. A local planning board in each borough will advise the Planning Commission in respect to any matters within the scope of its activities. These boards will each have three members with overlapping terms of six years and will be appointed by the Borough President. They will serve without compensation.

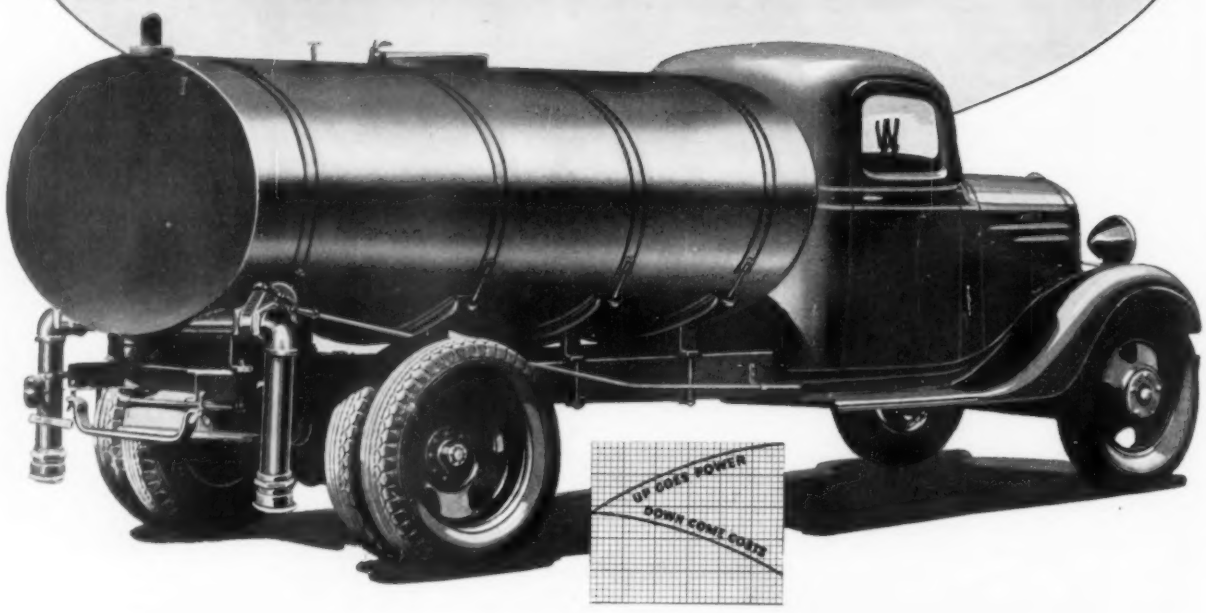
Budgeting and Borrowing

In its treatment of the city's financial methods the Commission has sought to simplify the procedure of budgeting and borrowing and to profit by the experiences of the city under its existing charter. The annual expense budget is to be prepared by the Budget Director and presented by the Mayor for adoption by the Board of Estimate and the Council, very much as this is now done. The budget must make provision for snow removal, claims, judgments and other contingencies, on the basis of the average requirements of the preceding five years, with restrictions upon the transfer of such appropriations to other purposes. The tax deficiency provisions are strengthened with a view to insuring a balanced budget and accumulating over a period of years a reserve which will eliminate much of the present borrowing between tax collection dates.

A pay-as-you-go plan, applying to improvements other than subways, docks and water supply, is introduced gradually over a period of twenty years. Finally, the city's fiscal year is changed so that it will run from July 1 to June 30. This not only conforms to the Federal and state fiscal years but results in transferring the period of the budget making from the distractions of the summer vacation period and autumn elections to the spring of the year.

The personnel of the New York City Charter Revision Commission, responsible for the draft of the proposed charter, as summarized above, comprises Thomas D. Thacher, Chairman, S. John Block, Mrs. William P. Earle, Jr., Frederick L. Hackenburg, Charles E. Hughes, Jr., Joseph D. McGoldrick, Charles G. Meyer, Thomas I. Parkinson, Joseph M. Proskauer; Joseph P. Chamberlain, Counsel, Laurence A. Tanzer, Associate Counsel.

LOWER COSTS for CLEANER STREETS



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for street flushing and sprinkling equipment

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Massive frame . . . big, husky, 4-Speed Transmission . . . Full-Floating Rear Axle . . . Perfected Hydraulic Brakes . . . and Chevrolet's smooth, powerful, Valve-in-Head Engine—these are just a few of the reasons why Chevrolet trucks are *the world's thriftiest high-powered trucks!*

Such ruggedness and power recommend the Chevrolet 1½-ton chassis for street cleaning service. Famous Chevrolet dependability is suited to those slow speeds—block after block—mile on mile—day in and day out!

But the economy with which the job is done is equally important. Chevrolet's Valve-in-Head Engine supplies that, too—with unusually low gasoline and oil consumption. Lower operating costs such as Chevrolet offers, plus low initial cost, make Chevrolet the choice for municipal power and transportation requirements of all kinds. And quite often, it is cheaper to replace old equipment which has become costly to maintain and operate, with new, low-priced, dependable and economical Chevrolet units.

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GENERAL MOTORS INSTALLMENT PLAN — MONTHLY PAYMENTS TO SUIT YOUR PURSE

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Forward Steps

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

The Palo Alto Community Center

PALO ALTO, CALIF.— Strategically located in the heart of the residential district of Palo Alto, the new Community Center fosters many recreational, cultural and artistic activities. Under the jurisdiction of the Community Center Commission, a branch of the municipal government, the building is available for social gatherings, recitals, lectures and dramatic events. An attendance of approximately 200,000 has been recorded for the first year.

Few cities of comparable size in the United States can match this institution, which was made possible by the generosity of Mrs. Louis Stern, and allocations for work relief by local and Federal governments. Birge M. Clark and David B. Clark were the architects.

The Civic Theatre, completed in July 1933, was the first unit of the plant, consisting of an auditorium which seats 428 persons, a stage larger than most commercial ones, a well-equipped workshop, costume room, green room, director's office, and dressing-rooms. A wing, constructed later, includes a rehearsal hall and a music room.

In April, 1935, the Ruth Stern Wing, or second unit, was dedicated to community service. Its spacious lobby leads into the main salon, 72 by 42 feet in size, six offices, the director's apartment, a small meeting-room, a reception hall capable of seating 100 people, a dining-room, kitchen, and basement game-room.

The Community Players, organized in June, 1931, is the principal producing group in the Civic Theatre. From 1920, a true community theatre was one of the aims of the City Recreation Department,

Kathleen Norris, Dr. James G. Sharp (city planning expert), Dr. Margery Bailey (Assistant Professor of English at Stanford University) as they appeared in the Palo Alto Community Players production of "The Swan" March 18-23, 1936, at the Civic Theatre in that city

now headed by Phillip A. Brotherton. During the first year, thirty-five programs were presented in the old Community House upon an inadequate, makeshift stage. Deep interest and hard work brought the organization through the next year with money to equip its new theatre.

Ralph Emerson Welles, a man of talent and wide experience in professional and community enterprise, has directed the Players since November, 1932. Carroll Alexander, a scenic artist of exceptional ability, is the technical director. Membership is open to every one interested, since the organization is designed to provide a recreational outlet for all who desire to participate. Nevertheless, the theatre is constantly working toward a high standard of artistic achievement. With a growing membership of 500, and an enthusiastic clientele from the entire Peninsula, the Players offer a major production for a three-night run, and a workshop program of one-acts or experimental drama, every month. An Executive Board of ten elective members advises with the supervising director, chooses plays and approves expenditures.

In point of total attendance, the theatre's most successful play was "The Swan," produced in March, 1936, with Kathleen Norris in the leading role. Other high points were: "Street Scene," "The Trial of Mary Dugan" and "Fashion."

A well-developed Children's Community Theatre also operates under the Recreation Department. Directed by Hazel Glaister Robertson, the group represents a definite recreational contribution to the city's educational program. A self-perpetuating advisory board of fifteen members assists the director. The current production of "Peter Pan" is attracting attention from far afield.

Administrative salaries for both theatre groups, and funds for the maintenance of the buildings, are appropriated in the city budget. All other production expenses are paid out of receipts, deposited with the city treasurer.

The Community Center building was constructed by city relief workers, the SERA and the WPA. The grounds are still in process of beautification by crews of WPA workers. The theatre personnel includes an efficient backstage crew and an orchestra under our WPA recreation project.

BEATRICE A. JONES,
Publicity Director.

THE PALO ALTO COMMUNITY CENTER
Civic Theatre on the left, and the Ruth Stern Wing on the right

A Municipal Reference Library for Memphis

MEMPHIS, TENN.—A Municipal Reference Library has been created in Memphis, Tenn., as a new bureau under the Department of Utilities, Grounds and Buildings. Miss Louise Gambill, formerly of the staff of the Cossitt Library, in Memphis, will be in charge.

The bureau will serve city officials and employees by obtaining and supplying all types of information on modern thought and practice in the field of municipal government. Its resources will afford local authorities ready contact with progressive methods, new discoveries, the experience of other cities, and the findings of government experts in every division of government service. Through such an agency officials can conserve valuable time and avoid duplication of effort, while obtaining a more comprehensive service. Whereas each official in the past has had to seek out for himself information needed in his department's work, the Library will now supply him quickly and

FOR 32 years Tarvia has been helping thrifty communities put the "Good Roads at Low Cost" principle into practise. With Tarvia they build roads to meet immediate needs—smooth, easy-riding, skid-safe roads which can be easily and quickly widened and strengthened when traffic volume increases. Costs are impressively low, and there is never any need for heavy bond issues and sky-rocketing taxes. Ask the Tarvia field man.

THE TECHNICAL SERVICE BUREAU of The Barrett Company invites your consultation with its technically trained staff, without cost or obligation. Address The Technical Service Bureau, The Barrett Company, 40 Rector Street, New York.

Central Street, Winchendon, Massachusetts. Tarvia-built, 1915. Only the simplest, most inexpensive maintenance has been necessary to keep this pavement in perfect condition through 21 years of ever-increasing traffic.

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efficiently with all the available aids on any problem and will keep him in touch with current publications useful in his field.

An Important City Asset

As a means of enabling city employees to increase their knowledge and efficiency by study of modern methods in their work, the Library also will aid in personnel development. All departments of the city government will cooperate with the work of the new bureau and participate in its services. Municipal reporting will be one of its functions. Information on the city government's activities, services, and progress will be made available to the citizens.

Through the cooperation of Jesse Cunningham, Librarian of Cossitt Library, who helped organize the St. Louis Municipal Reference Library, the Memphis Reference Library will be able to supplement its own resources by drawing upon the Cossitt collection and facilities. The creation of the local bureau is the result of detailed study by Mayor Watkins Overton and the Commissioner of Public Utilities, Grounds and Buildings of the benefits derived by other cities from such a service.

Miss Gambill's promotion, says Mayor Overton, is in line with the administration's policy of recognizing and developing ability among municipal employees in order to render better service to the public. During her past eight years at Cossitt Library, she has had extensive experience under Mr. Cunningham in rendering reference services to city officials and in municipal reporting. Her services were loaned to the city government last summer to compile the booklet, "Memphis: A Story of Progress," which the National Municipal League awarded third place among the reports of 55 competing cities.

RALPH PICARD,
Commissioner, Department of Public Utilities, Grounds and Buildings.

Cleanliness Rating of Eating and Drinking Utensils in Restaurants

DAYTON, OHIO.—At the beginning of the year 1936, the Division of Health of the Department of Public Welfare in Dayton renewed a project started in 1924 and discontinued in 1933 because of curtailment of funds—that of giving greater protection to the "eating-out public."

A large proportion of the residents of any city eat at least one meal a day in public food establishments where, of necessity, the same eating and drinking utensils are used by many persons in the course of a single day. Proper cleansing and sterilization of tableware will prevent the indirect transfer of much disease from infected to healthy persons. Our procedure in rating restaurants is as follows:

The inspector visits the food establishments on a planned route. At each place he collects one or more glasses, spoons, forks or cups which are ready for service. Each article is immediately wrapped in one of the sterile towels enclosed in muslin wrappers brought by the inspector from the Health Laboratory. Upon the inspector's return to the Laboratory, cultures are made by immersing the rim of the glass or cup, the bowl of the spoon and the tines of the fork in a sterile liquid culture medium. Agitation of the medium distributes the bacteria evenly through the culture. After incubation of 48 hours, plate counts are made. This gives a measure of the effectiveness of cleansing methods in use by food establishments.

It is kept in mind that restaurants can not be run upon the same principles of asepsis as a surgical operating room in a hospital. Allowance has to be made for air contamination and handling in the period between washing and serving. After many tests, it was determined that under a count of 10 a rating of A (excellent) would be reasonable. Other groupings are: B (good), 11 to 30; C (fair), 31 to 50; D (poor), 51 to 100; and E (very bad), 100—up. These ratings are published for the information of the public, under authority of an ordinance.

Cooperation by Restaurants

Continuous improvement has been accomplished by the cooperation of the restaurant and fountain operators with the inspectors of the Division of Health. Most operators have been eager to correct unsatisfactory conditions and to secure good ratings. To do this, many establishments have installed new equipment or improved the old. The conscientious operator has received public recognition for his service to the patrons of the establishment.

All establishments are required to use double-tanks with running hot water connections, unless dishwashing machines are used. Since the return of beer and liquor, separate double-tank units are required for glasses. Dishes are thoroughly scraped or rinsed before washing. They are washed in hot water with soap or an efficient washing powder, then rinsed in hot water. This should be followed by sterilization by live steam, boiling, or by chlorine. A chlorine solution is most effective after the article has been thoroughly washed and rinsed. Hand drying with towels is discouraged.

The repeal of prohibition created a new inspection problem. The alcoholic content of most drinks is too low to form an efficient sterilizing agent. Even with drinks of high alcoholic content, the time of contact with the rim of the glass is too short to effect sterilization. Therefore, the glass must be sterilized before each service. The common practice of swishing a beer stein through clear, cool water is not an acceptable procedure for cleaning.

A. O. PETERS, M. D.,
Commissioner of Health.

A Town of 527 Has Established a Fine Community Park

CAMBRIDGE, WIS.—Far-sighted public citizens of Cambridge, a town of but 527 population, decided a number of years ago that they wanted a public park and playgrounds. They were not deterred by the fact that because there were only a few people in the town it might be difficult to raise enough money to swing the project through to satisfactory completion.

The local Chamber of Commerce originated the idea of staging a huge public festival every year and of putting the profit from such an affair into a park fund. This was done, and it was not many years before there was enough money to begin the park and playground project.

City officials then started a popular subscription campaign and raised $5,000. This was ample to do much of the work toward giving this small town a fine park on beautiful Lake Ripley.

That was only a few years ago. The town continued to stage festivals throughout the depression and now has a park valued at from $35,000 to $40,000. It has a fine athletic field with shelter-proof bleachers and grandstand. There are also a number of tennis courts, and excellent bathing facilities. City and town officials of Wisconsin say that this is the best small-town park in the Middle West.

It was made possible by far-sighted planning and hard work by many public-spirited citizens.

MARTIN FRANCIS.

TENNIS COURTS IN THE PARK IN CAMBRIDGE, WIS., ON LAKE RIPLEY

STATE, COUNTY, AND CITY OFFICIALS ARE SAYING "THAT'S THE TRUCK"

Truck buyers among State, County and City officials as well as those in other lines of business are placing their stamp of approval on the entire line of improved GMC trucks. Whichever type or size they own, they're saying of it "That's the truck!"

And small wonder. There's the exceptional GMC in the 3-ton range at only $895, chassis f. o. b. Pontiac —a value unmatched in its ability to out-perform and out-earn. There are GMCs of greater capacity values that challenge the field in their respective capacity ranges. There's money-saving dual performance, now available for all GMCs ranging in capacity from 1½ to 6 tons. There's the 1½-2 ton many-feature, quality GMC at the surprisingly low price of $525, chassis f. o. b. Pontiac.

And in the great new GMC line, you will also find scores of refinements such as more powerful engines, improved weight distribution, advanced streamlined appearance, more comfortable all-steel "helmet top" cabs and, more than ever before, the kind of construction that assures "engineered-for-the-job transportation."

1/2 TO 15 TONS

THE TRUCK OF VALUE

Time Payments available through our own Y. M. A. C. 6% plan

general motors trucks and trailers

GENERAL MOTORS TRUCK COMPANY, PONTIAC, MICHIGAN

Topeka Steps Forward with a Notable Report

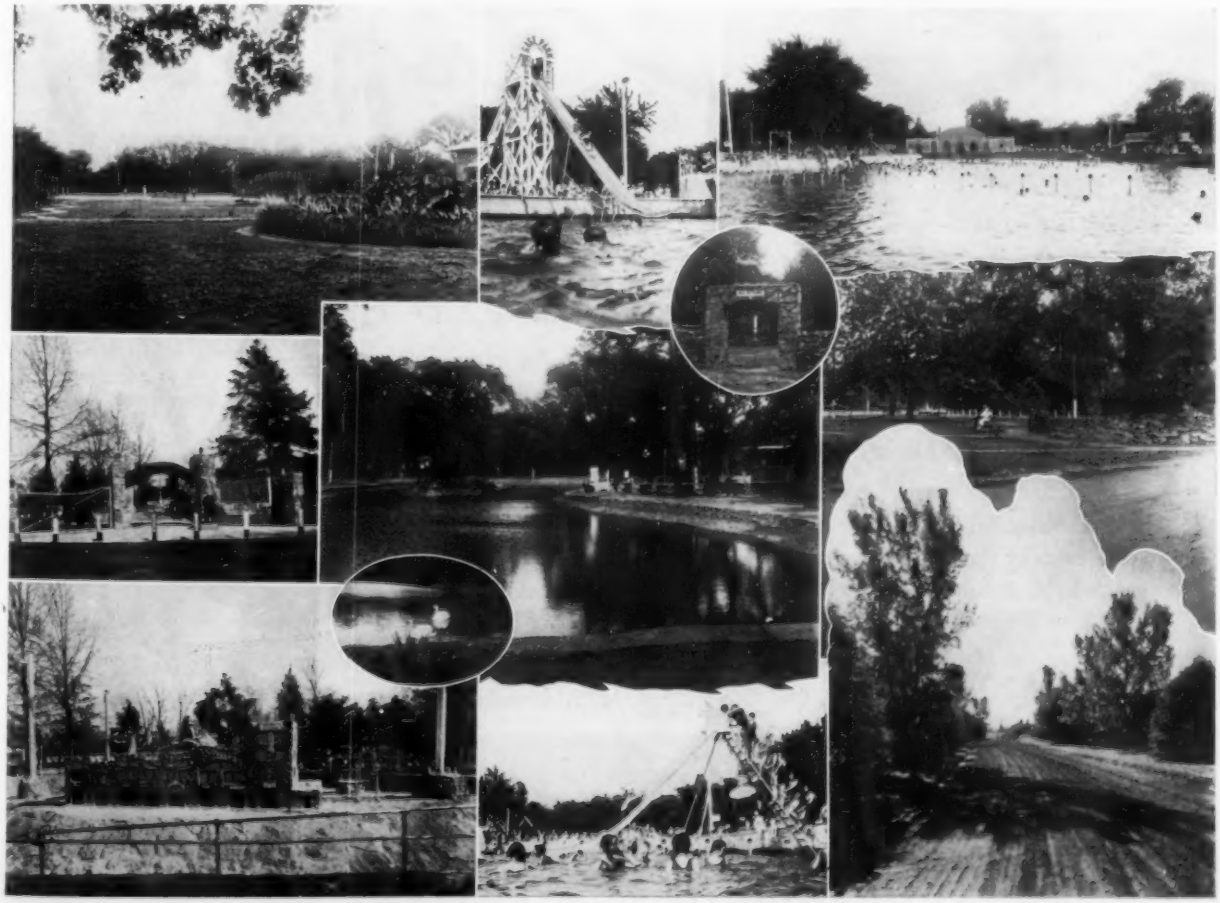
"HE who runs may read" the report issued for the year 1935 by the Department of Finance and Revenue of the city of Topeka, Kans.—so clear and definite is the information obtained even by a first look at each page. It is submitted by R. F. Agard, Auditor of the Department, of which Dean Van Ness is the Commissioner.

The quality of clarity has been attained by excluding all befogging features and by setting forth, in well-displayed topography that talks, the essential facts, under definite classifications, answering the questions of the intelligent citizen as to how his city got the funds to operate the separate services rendered during 1935, what these services were, and what each cost per capita and, for the average property, per annum and per month. The few charts and diagrams really illuminate and inform, and a number of photographs of public buildings, parks and recreational activities add much interest. The group reproduced below adorns the double page (13¼ x 10) in the middle of the report.

The general organization of the city government is first presented, with the official roster, and a chart of revenue sources and expenditures for 1935. One of the features of the information on taxation is a table showing the individual tax rates per thousand dollars for the various functions of the city government—of interest to the property owner who questions the relative values of any of these services to him. Brief, straightforward narratives are given of the duties, accomplishments, expenditures and cost of each division, with the number of employees, and plans for improvements. No essential item is tucked away to be hunted for in a mass of fine print.

"Information for Investors" who may be interested in the municipal securities of Topeka is given in detailed tables and explanatory text. It is stated that: the city has never defaulted in the payment of a bond issue or the interest thereon; the city has the power to levy taxes on all taxable property for the payment of all bond obligations without limitation of rate or amount; all outstanding bonds are payable through the Kansas Fiscal Agency, where sufficient funds are on hand to meet all matured bonds and interest coupons. Thirty-two pages of Financial Reports and Statements are grouped for reference at the end of this 84-page report.

It is noteworthy that on January 1, 1935, Topeka installed a modern system of accounting and budgetary control in the Finance Department. Records are kept on the most modern type of mechanical equipment and provide daily information as to the city's financial condition. This system was designed to meet the requirements of the manual published by the National Committee on Municipal Accounting. In addition to this, a complete record is being compiled of all properties owned by the city, and should be completed in 1936.



TOPEKA'S REPORT FOR 1935 DISPLAYS THESE VIEWS OF THE CITY'S PARKS AND RECREATIONAL ACTIVITIES

HARLEY-DAVIDSONS WIN IN 4th ANNUAL TRAFFIC Safety CONTEST

Evanston, Ill., traffic patrol—Harley-Davidson mounted. 1935 Grand Award safety winner.

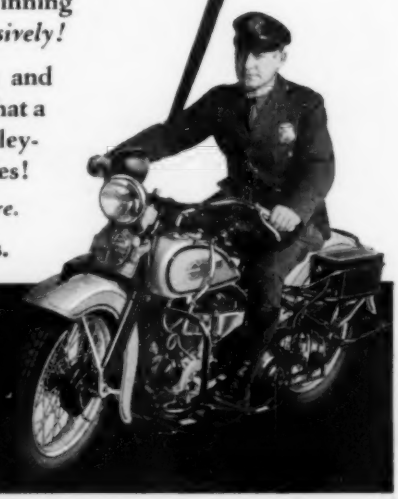
ONCE again the safest cities in the United States are those with motorcycle traffic squads! This outstanding fact was revealed by the results of the 1935 National Traffic Safety Contest, as announced recently by the National Safety Council.

But that's only part of the story. Analysis of the report shows that every city winning first place in the six population groups uses Harley-Davidson Motorcycles. The GRAND AWARD went to Evanston, Illinois—also a Harley-Davidson user. And 14 of the 18 cities winning first, second and third place use Harley-Davidsons—11 *exclusively!*

What a convincing story these figures tell of the importance and efficiency of motorcycles in traffic control and traffic safety! And what a remarkable tribute to the speed, stamina, and dependability of Harley-Davidson Police Motorcycles—the choice of America's Safest Cities!

See your nearby Harley-Davidson dealer or write for special police literature.

HARLEY-DAVIDSON MOTOR CO., Dept. M, Milwaukee, Wis.



HARLEY-DAVIDSON
The Police Motorcycle

Detroit, Oakland, Syracuse, Schenectady, Brookline and Hibbing Win Health Awards

Prizes and Honorable Mentions for Other Cities and Counties in Annual Health Conservation Contest

HARPER SIBLEY, President of the Chamber of Commerce of the United States, announced last month, on behalf of the Board of Judges, the winners in the seventh annual inter-chamber health conservation contest conducted among cities and counties by the National Chamber in cooperation with the American Public Health Association.

The city contest, open to cities anywhere in the country, is to determine which municipalities of various populations are carrying on the most effective community public health programs, in an effort to prevent premature deaths and economic losses due to unnecessary illness. Two hundred and thirty-four cities competed, including 34 new competitors. Forty-five states, Alaska and the Islands of Hawaii were represented. The city contest is supported by a group of insurance companies. Plaques were presented to the winning cities at the annual meeting of the U. S. Chamber in Washington, April 27.

Competing cities were judged by an Awards Committee on the basis of the availability and use of safe water supplies, the adequacy of sewage disposal, the extent to which children are protected against such diseases as diphtheria and smallpox, the number of expectant mothers who receive proper prenatal care, the number of babies who are being kept well through adequate medical supervision, the safety and purity of the milk supply, the use of effective measures for the control and prevention of such diseases as tuberculosis and venereal diseases, and the extent to which the physicians and dentists are practicing preventive medicine.

Winning and honorable mention awards are given in each of six population groups ranging from the largest to the smallest cities. In addition, Special Awards are granted to a small, select group of cities which have twice won first place in the contest and have maintained their previous high standards of health achievement during 1935. (This group is not in the contest proper.) These Special Awards were granted to (arranged alphabetically) Baltimore, Md.; Hackensack, N. J.; Newark, N. J.; and Palo Alto, Calif.

Winning and honorable mention cities in 1935 for each of the six population groups are:

For the largest cities of over 500,000 population, the first award goes to Detroit, Mich.; and honorable mention to Milwaukee, Wis., and Pittsburgh, Pa.

In cities of between 250,000 and 500,000 population, Oakland, Calif., attains the first award, and honorable mention goes to Minneapolis, Minn., and Dallas, Texas.

In cities of between 100,000 and 250,000, Syracuse, N. Y., wins first place, and honorable mention goes to New Haven, Conn.; Springfield, Mass.; Grand Rapids, Mich.; Reading, Pa.; Honolulu, Hawaii; Hartford, Conn.; Duluth, Minn.; Yonkers, N. Y.; and Tacoma, Wash.

In cities of between 50,000 and 100,000, Schenectady, N. Y., receives the first award, and honorable mention goes to Pasadena, Calif.; Evanston, Ill.; Waterbury, Conn.; New Rochelle, N. Y.; Kalamazoo, Mich.; Greensboro, N. C.; Binghamton, N. Y.; Sacramento, Calif.; and Saginaw, Mich.

In cities of between 20,000 and 50,000, the winner is Brookline, Mass., and honorable mention goes to Auburn, N. Y.; Greenwich, Conn.; Watertown, N. Y.; Santa Barbara, Calif.; Pittsfield, Mass.; Plainfield, N. J.; and Ithaca, N. Y.

In cities under 20,000 population, Hibbing, Minn., obtains the first prize, and honorable mention goes to Englewood, N. J.; Blackwell, Okla.; and Miami Beach, Fla.

Results of the County Contest

The items on which county participants were rated were similar to those for scoring the cities, except that problems peculiar to rural districts were particularly emphasized, such as water supplies and disposal of wastes for schools and tourist camps, as well as the general preventive and protective measures included in a reasonably well-developed public health program applicable to all communities.

Each participating rural unit, having been visited by a representative of the American Public Health Association, submitted a schedule, detailing its health practices and accomplishments. These schedules were scored by a committee of health experts and the awards were made on the basis of their findings.

The contest was limited to counties and districts having full-time health service, and 160 such counties or districts enrolled, representing 30 of the 33 states in the Union which have eligible units. The population included in participating units is between eight and nine million. The expenses of the contest were borne by the W. K. Kellogg Foundation, of Battle Creek, Mich.

For this contest the United States was divided into six geographical divisions, three east and three west of the Mississippi River.

First prize in the Northeastern Division goes to Westchester County, N. Y., and honorable mention to Cattaraugus County, N. Y.; Southern Berkshire District, Mass.; Cortland County, N. Y.; Ottawa County, Mich.; and Richland County, Ohio.

In the Eastern Division, the first prize goes to Davidson County, Tenn., and honorable mention to Kent County, Md.; Forsyth County, N. C.; Fayette County, Ky.; Sullivan County, Tenn.; Rutherford County, Tenn.; Wicomico County, Md.; Madison County, Ky.; and Shelby County, Tenn.

In the North Central Division the first place was won by Shawnee County, Kans. No honorable mention was given.

In the South Central Division, the winner is El Paso County, Texas, and honorable mention goes to Dallas County, Texas; Nolan County, Texas; Potter County, Texas; and Rapides Parish, La.

In the Southeastern Division, the first place winner is Glynn County, Ga., and honorable mention is given to Pike County, Miss.; Charleston County, S. C.; and Lauderdale County, Miss.

In the Western Division, first prize is awarded to Santa Barbara County, Calif., and honorable mention is attained by Los Angeles County, Calif.; Santa Clara County, Calif.; and Spokane County, Wash.

The rural contest grew out of the fact that improvement in health administration has generally progressed more rapidly in cities than in country districts. Notwithstanding the natural advantages of country life, rural death rates in general still exceed urban rates. Progress is being made, however, in improving rural health work through the adoption of the county or district unit form of administration. The larger unit of the county, or a group of counties, can support a full-time health officer and more adequate administrative, nursing, laboratory, sanitation and preventive services. Progress in changing from smaller to the larger units, with full-time service, has been encouraging, though less than one-fourth of the counties have yet established county or district health units.

A RECORD—

Three Million

FORD TRUCKS

AND COMMERCIAL CARS

In this month of May, 1936, Ford Motor Company completes the building of three million trucks and commercial cars . . . one-third of all that have been built since the beginning of the industry.

There is no substitute for experience. Ford experience has been twofold. In addition to advancements in methods of manufacture, Ford engineers have gained a first-hand knowledge of the needs of owners in every field of hauling and delivery service. They know WHAT to build, as well as HOW to build it. They are able to design and construct units with exact knowledge of requirements . . . to anticipate changes in operating conditions and even to bring about such changes.

The 8-cylinder V-type engine, introduced by Ford into the commercial field, did just that. Bringing power to haul heavy loads at high speeds . . . and the flexibility to cover delivery routes quickly . . . it cut operating costs in all kinds of service.

Ford V-8 Trucks and Commercial Cars have been proved by the past. Experience has improved them for the future. Find out what Ford experience can contribute to your business. Call a Ford dealer today and set a date for an "on-the-job" test with your own loads, under your own operating conditions.

FEATURES OF THE FORD V-8 TRUCK

80-horsepower V-8 engine with full cylinder-length water-jackets, floating-type connecting-rod bearings, dual down-draft economy carburetor, and duplex intake manifold, exhaust valve-seat inserts, factory-set permanent valve clearances, direct-driven ignition, positive lubrication system, directed-flow crankcase ventilation.

More ideal load distribution
Full-floating rear axle
Straddle-mounted pinion
Full torque-tube drive
Free-shackled springs
Durable baked-enamel finish
Quick-action safety brakes
Heavy-duty transmission
Centri-force clutch
Coupe-type cab of all-steel construction, including roof
Safety Glass throughout

Ask your Ford dealer about the Ford Engine and Parts Exchange Plan

Any new 112-inch wheelbase Ford V-8 Commercial Car can be purchased for $25 a month, with usual low down-payment. Any new 131½-inch or 157-inch wheelbase Ford V-8 Truck can be purchased with the usual low down-payment on the new U C C ½% per month Finance Plans.

FORD V-8 TRUCKS

AND COMMERCIAL CARS

Do you mention THE AMERICAN CITY? Please do.

Electric Rates for Residential Service Analyzed by Federal Power Commission

THE Federal Power Commission has issued its Rate Series No. 3 under the title, "Average Typical Residential Bills by States, Geographic Divisions and the United States." Rate Series No. 1, summarized on page 61 of THE AMERICAN CITY for January, 1936, presented electric rates in 191 cities of 50,000 population or more. Rate Series No. 2 was published in the form of a separate report for each state, and included nearly 18,000 communities; and the rates charged by 1,716 municipal electric departments were published as Section 7 of The Municipal Index, 1936.

The present report renders hypothetical bills for three domestic consumptions: 25 kwh for lighting; 100 kwh for lighting, small appliances and refrigerator; 250 kwh, including also electric range. Average consumption of 61 per cent of residential customers is below 40 kwh. The trend is toward larger consumptions, and the accompanying chart gives the average net monthly bills for 100 kwh for each of the states and for nine principal geographic divisions.

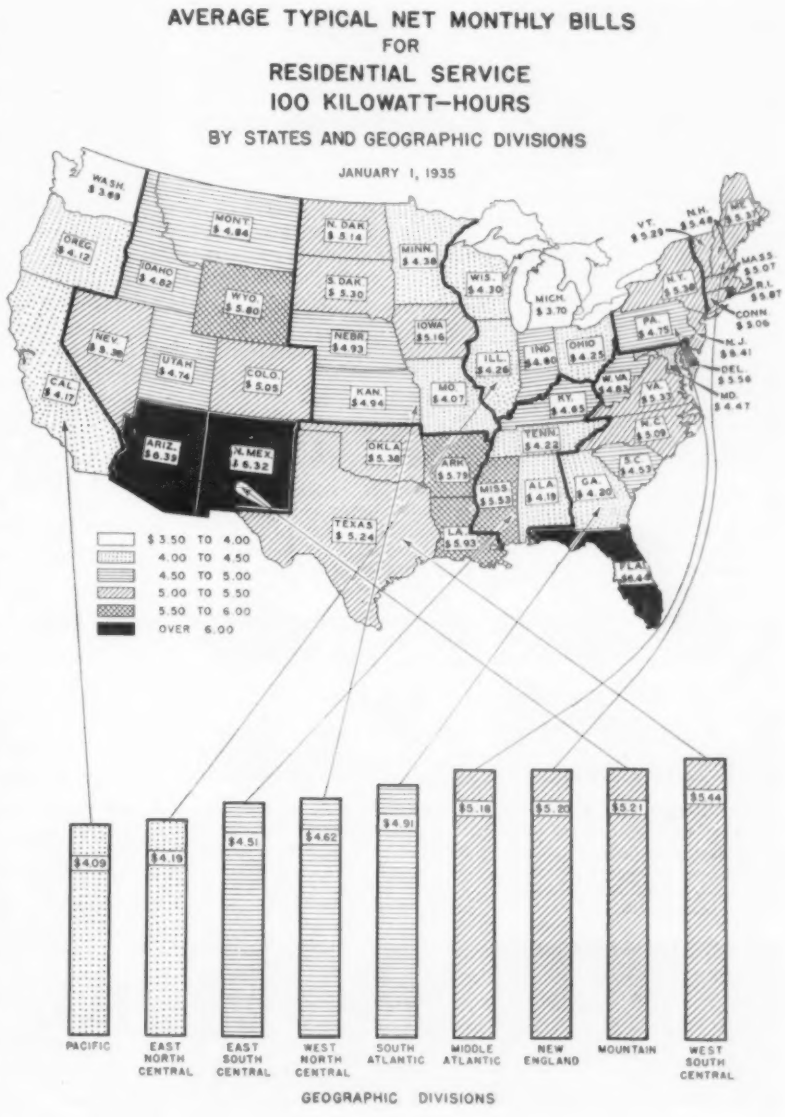
The individual rates, though varying greatly among the different communities, are of course brought much closer together by averaging. These averages, moreover, are weighted on the basis of population, as a figure obtained by adding the rates of the largest and the smallest city and dividing by two would be valueless as a measure of prices at which the utilities offer service within the various regions.

At the same time, consideration must be given to the fact that these weighted averages reflect not only the electric rates but the distribution of state population as well, and in some states a large city may determine the state average. The state averages for 100 kwh range from $3.69 in Washington to $6.44 in Florida, with a general U. S. average of $4.78. This is a difference of 20 per cent between low and average, and 35 per cent between high and average. The report, of course, presents the prices for 25 kwh and 250 kwh as well as for 100 kwh; the lows and highs are $1.41 in California and $2.97 in New Mexico for 25 kwh. and $6.98 in Washington and $11.91 in New Mexico for 250 kwh.

The next analysis is by sizes of communities, and for 25-100 kwh the average prices decrease rather steadily with the population. For 25 kwh the increase is from $1.55 in the largest communities to $2.33 in places under 250 population, a rise of 50 per cent.

Revenue per kwh, also a weighted average, varies from 2.7 cents in Washington to 8 cents in Louisiana. Consumption per customer averages 587 kwh for the country and spreads from 450 kwh in New Hampshire to 1,104 in the state of Washington. It is interesting, if not indeed significant, to note that the state with the lowest rate has the highest consumption. The average annual revenue per customer varies from $27.89 in Michigan to $45.32 in Florida, due not only to high rates but to comparatively large consumption as well.

A number of tabulations of state data give geographic characteristics as of the year 1933. These include generating capacities, kilowatt-hours and revenue by classes of consumers. The total for street lighting and other municipal uses was 4.87 billion kwh, with a revenue of $114,103,564, or 2.34 cents per kwh.



It is seen that the states are classified in accordance with six rate ranges, white being $3.50 to $4.00, and black being over $6.00 per month for 100 kwh. For 25 kwh per month the picture changes, except for these states, which remain in the same relative groups:

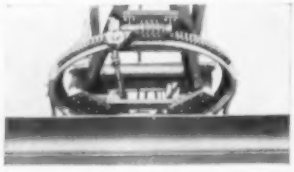
Washington, Oregon, Idaho, Nevada, New Mexico, Nebraska, Kansas, Oklahoma, Texas, Missouri, Arkansas, Louisiana, Illinois, Kentucky, Tennessee, Alabama, Georgia, Maine, New Jersey, Pennsylvania, West Virginia, North Carolina, South Carolina.

Highest rates for 25 kwh are found in Wyoming and New Mexico; lowest are in Washington and California.

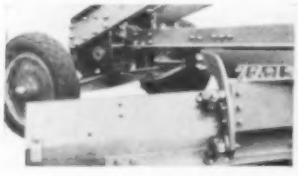
Compare THE ALLIS-CHALMERS SPEED PATROL BEFORE YOU BUY !

✓ CHECK THESE A-C ADVANTAGES

1. COMPLETE WEAR TAKE-UP OF ALL WORKING PARTS—Assures tight joints. No "sloppy" work . . . no big repaid bills . . . no springs or gadgets necessary to prevent moldboard chatter.



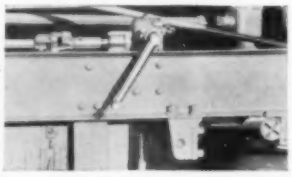
2. LARGEST AREA OF CIRCLE WORKING IN GUIDES—Guides have a bearing surface of 35 per cent of circle—double to triple the usual guide area. Moldboard and blade held firmly.



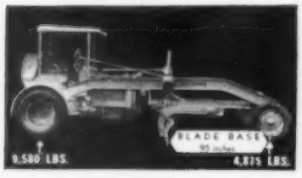
3. ALL-BOLTED CONSTRUCTION — NO RIVETS, NO WELDS, NO LOCK WASHERS—Alloy steel "stretch-proof" bolts and high, double-thickness nuts assure perfect alignment. No loose rivets or broken welds.

4. GREATEST PERCENTAGE OF BLADE PRESSURE—Blade pressure limits performance. A-C Speed Patrols utilize a greater percentage of their weight on the blade than any others.

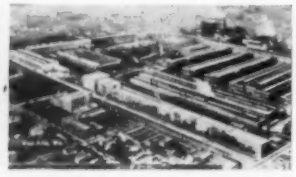
5. HEAVIEST DRAWBAR OF ANY MOTOR GRADER—Built to withstand severe service and to transmit full power to the circle. Pivots on large ball-and-socket draft connection—free movement of blade.



6. CRANK IN A HANDY, READILY USABLE POSITION—Operator can crank motor regardless of position of blade. No acrobatics—no squeezing in behind the blade—no hard-to-get-at positions.



7. PROPER BALANCE AND CONTROL—Balanced for maximum performance of blade. Longer blade base for smoother maintenance. Ample weight on front wheels to prevent side-lifting on heavy cuts.



8. DESIGNED AND BUILT ENTIRELY BY ONE COMPANY—Service from one dealer. Not subject to the whims of outside manufacturers whose interest in performance and service may be only secondary.

COMPARE THE 1936 PATROLS

Feature No.	√1	√2	√3	√4	√5	√6	√7	√8
A-C Patrol	YES	YES	YES	YES	YES	YES	YES	YES
Patrol No. 2	?	?	?	?	?	?	?	?
Patrol No. 3	?	?	?	?	?	?	?	?
Patrol No. 4	?	?	?	?	?	?	?	?
Patrol No. 5	?	?	?	?	?	?	?	?

SMOOTHER . . FASTER MAINTENANCE

No motor grader on the market can compare with the Speed Patrol—in soundness of design . . . in quality of construction . . . in actual performance. A strong statement, perhaps, but one that is based on actual facts. To see for yourself, you need only COMPARE the Speed Patrol with any other motor grader built. Two sizes—Model 54 and Model 42. Powered by world-famous engines of Allis-Chalmers' own make. Graders and motors built, backed and serviced by one organization. Solve that big spring maintenance problem at the lowest cost per mile—with Allis-Chalmers Speed Patrols.

ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE, U. S. A.

• • •

ALLIS-CHALMERS PRODUCTS

Controlled Ignition Oil Tractors
Track-Type Tractors (Gasoline)
Wheel-Type Tractors
Speed Patrols
Power-Controlled Graders
Hand-Controlled Graders
Power Units
Track Wagons
Wagon Tracks

Roadside Beautification: Esthetics and Ethics

To the Editor of THE AMERICAN CITY:

A letter appeared in the March issue of THE AMERICAN CITY entitled, "Roadside Beautification as a Club Project." It stresses the idea that planting flowers, shrubs or trees is the means of making our roadsides beautiful. The idea that planting alone can create beauty in landscape (and highways are a component part of humanized landscape) is so commonly accepted that the fallacy should be brought to public attention.

"Roadside beautification" is a term frequently applied to efforts which are made to improve the appearance of highways, and one which is unfortunately becoming widely accepted. In the past but little attention was paid to the esthetic side of highway planning. The highway engineer, trained to appreciation of precision in alignment, curvature and gradient, saw beauty in mathematical perfection of these qualities, but failed to recognize the beauty of perfection which lies in coordination of artificial structures with the earth's surface. No element in his education or training created any appreciation or sympathetic understanding of beauty in landscape. In our better park and parkway design we are familiar with road construction which has been designed with primary regard for the relation of alignment, curvature and gradient to the pre-existent natural form of the earth. We may accept the inherent beauty of such road design as a natural circumstance, just as we may accept any well-designed landscape, but such acceptance carries with it recognition of successful accomplishment on the part of the designer. The planting can hardly be considered incidental, but is supplementary and essential to the completed picture. Thus planting is clearly the finishing touch in the creation of beautiful landscapes.

In highways, restricted rights-of-way are one of several factors which create a different problem from parkway design, but the general principles which must be considered in order to secure results that satisfy esthetically are the same. If "roadside beautification" means simply planting trees and shrubs, let us realize that we can only hope to mitigate thereby the mistakes of unknowing and unsympathetic design. If it means more than this, we should recognize that it must mean good road design, otherwise we do not admit eventual beauty as an inherent part of good road design.

The rapidly growing interest in the beautification of our roadsides and the demand that efforts be made to make them esthetically satisfying should be encouraged in every way possible. The idea that desirable results can be attained simply through planting is a serious threat to the accomplishment of satisfactory results. Perhaps we have to accept the halfway measure of planting to mitigate the evil appearance of much of the work that has been done, but don't let us encourage the idea that such planting is a cure-all or a desirable measure for future work. The highways of the future must be well and completely designed, and many of our existing ones should be re-designed, or at least the roadsides should be re-graded and planted if we would attain beauty in them.

The letter referred to says that Mr. Torkelson's plan proposes that "initial plantings in flowers, shrubs or trees would be secured from Federal or state conservation laboratories which maintain this service, if not free, at least on a cost basis." Mr. Babcock's statement bears no resemblance to the talk by Mr. Torkelson, whose personal ideas are certainly opposed to those expressed in the letter quoted. But the latter are so often accepted that they should not pass unchallenged.

I don't think exception can be taken to the growing of trees by state and Federal governments for purposes of reforestation or experimentation; but if these agencies grow trees, shrubs and flowers for other uses, they are directly interfering with the legitimate private business of the nurseryman. Such action is clearly unfair competition in a well-established industry and must not be entered into by state or nation. The list of plants which are grown today by governmental agencies for reforestation is probably restricted in all instances to certain trees of commercial importance. Those which are grown for experimentation are not available in quantity. Ergo, the plant materials that would be available under Mr. Babcock's revision of Mr. Torkelson's plan offer too limited a selection for effective ornamental planting, even if we admit it proper that the private nursery business be eliminated.

THE AMERICAN CITY should bend every effort to discourage proposals that bear witness to such lack of understanding, of appreciation and of fair dealing.

ROBERT WHEELWRIGHT,
Professor of Landscape Architecture,
University of Pennsylvania.

March 31, 1936.

How Cities May Prepare for Disasters

THE United States Conference of Mayors last month released a report showing how one major American city—Los Angeles—has prepared for a possible disaster, such as those of flood and tornado, which have struck numerous cities within recent months. The Los Angeles "disaster-preparedness" plan and ordinance has been sent, it was revealed, to all important cities throughout the country as a possible guide for local use.

Paul V. Betters, Director of the Mayors' Conference, stated that he had been requested by the Conference Executive Committee to distribute the Los Angeles report, which has already been adopted by several other West Coast cities, including Oakland. He said:

"It is doubtful if there is any place in the country that has not at some time been visited by a disaster such as flood, storm, earthquake, fire or pestilence. The seriousness of these disasters is usually in direct ratio with the extent of preparedness to meet them. In recognition of this, the city of Los Angeles has adopted a far-reaching plan which has for its foundation the old slogan, "Be Prepared." Of course, no city looks forward to a disaster of any kind, but, realizing the possibility of disaster, cities should plan adequately for the unforeseen and unpredictable."

The Los Angeles law sets up a Major Disaster Emergency Council, a duly constituted body with power to act in time of emergency. Its authority takes into account Federal, state, county and city laws. Immediately upon a disaster of any kind, its executive committee of 44 members, appointed by the Mayor, is ready to go into action at specially designated headquarters—West Lake Park. If the disaster occurs within the city limits, the Law and Order Committee, comprising a coordinated system of police control, functions under the Police Chief. If outside the city, the Sheriff is in charge. All other law-enforcing groups are assigned to special duties and areas—but the point is that they know in advance what their job is.

A Fire Committee, organized on a basis of emergency work, is trained for instant action. There is a Water Committee which knows today, through surveys which have been undertaken, the facilities and available supplies. A Street Committee, charged with the cleaning of débris from all main thoroughfares, assisting in rescue work, grading and oiling of roadways in concentration camps, and the maintenance of sewers, is also provided for.

The Medical, Health and Sanitation Committee is under the City Health Officer. This committee has an inventory of all hospitals, medical and surgical supplies, private doctors and nurses, etc.

Other committees, made up largely of private citizens, have been established, including those for Transportation, Communication, Intelligence and Personnel. The local Red Cross Chapter is assigned responsibility for necessities of life, shelter, finance, rescue and rehabilitation.

Safe Streets

START WITH SAFE CARS!

THE public *will* cooperate! That's been proved. They *will* drive in and have their cars inspected at their Municipal Safety Line. They *will* go and have their cars adjusted and repaired. They *will* pay a nominal fee if required, for the inspection. They *will* proudly display their sticker or certificate proclaiming the safety of their cars.

When you choose your safety line equipment, choose as motor car manufacturers do, who select Bendix precision equipment for final new-car tests.

Bendix Civic Safety Clinic equipment enables you to test cars rapidly and with precision. The readings really mean what they say. You can test brakes, steering, wheel alignment, headlights, at the rate of a car off the line every minute! Horns, mirrors, windshield wipers, etc., are readily checked at the same time.

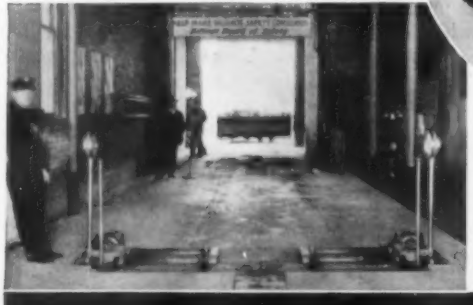
Send the coupon for full details, and proved operating plans.

BENDIX PRODUCTS CORPORATION
(Subsidiary of Bendix Aviation Corporation) South Bend, Indiana

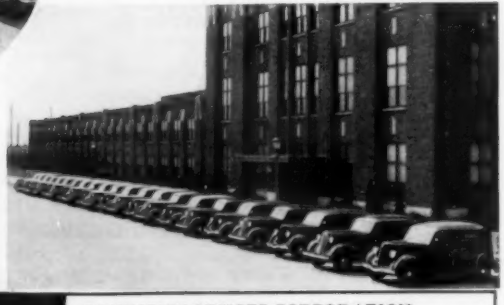
↑ **CINCINNATI, OHIO**
Modern Bendix Municipal Safety Equipment in use. Public Inspection Line, Union Terminal Building, Cincinnati. Note systematic layout for quick and efficient handling.

← Big, plain dials show exact braking efficiency of each wheel separately. This is the only brake tester which will handle trailer brake tests accurately.

↓ Part of the Bendix Highway Safety Fleet. Bendix men, like Bendix Products, are pledged to the advancement of motoring safety.



← **BILLINGS, MONT.**
Municipal Safety InspectionLine, showing Bendix Civic Safety Clinic Equipment. Handles all necessary tests of brakes, steering, lighting, etc.



New BENDIX Civic Safety Clinic

BENDIX PRODUCTS CORPORATION
401 Bendix Drive, Dept. A-5, South Bend, Ind.
Send me at once full details about Civic Safety Clinic Equipment, prices, operating plan, etc.

Name.....

Address.....

City.....*State*.....

Business or Profession.....

City Official (title) ☐..... Dealer ☐

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

Paul L. Green, Chairman; John Gibala, Vice-Chairman; Donald M. McNeil, Dwight M. McCracken, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, John C. Wrighton, Charles G. Beckenbach, Bruce D. Greenshields, Leslie J. Sorenson, Charles H. Rex, Tracy D. LeMay

What STOP and GO Mean

SAID a motorist, whose business and pleasure take him into many states: "It's bad enough to have to look for traffic lights on wires, poles, lamp-posts, in the air, on the ground, port, starboard and just about everywhere but underfoot; but when we do locate the blankety-blank things our job is only half done—we have to check up on where we are and try to figure out what we are supposed to do."

Believing that this phase of traffic control is one which will interest many readers of THE AMERICAN CITY, we present here a discussion of some of the recognized color systems in operation throughout the country, through the courtesy of officials of typical jurisdictions where these systems are in use. The Publications Committee of the Institute of Traffic Engineers takes no position in the matter other than to echo the hope of our motorist friend that it may soon be possible for "the boys to get together."

Key to symbols used for colors:

R—Red	D—Dark
Y—Yellow	F—Flashing
G—Green	

New Jersey

By ARNOLD H. VEY
Traffic Engineer, Motor Vehicle Department

Street A:	G	Y	R	R
Street B:	R	R	G	Y

New Jersey adopted the color sequence shown above in 1928. By the use of such a color sequence we feel that we have corrected, to a certain extent, the practice of motorists (stopped because of the red light) proceeding into the crossing before traffic on the cross street has had an opportunity either to clear the intersection or to stop short of it. Such a practice is generally quite prevalent when a yellow indication follows the red. Observations have indicated that the present sequence does correct this abuse and that it makes possible a better observance of traffic control signal commands than during the use of the old system in which the yellow followed both green and red.

Chicago, Ill.

By LESLIE J. SORENSON
City Traffic Engineer

Street A:	G	GY	GY	R	R	RY
Street B:	R	R	RY	G	GY	GY

The first traffic signal color sequence used by the city of Chicago was:

Street A:	G	GY	R	RY
Street B:	R	RY	G	GY

Both the GY and RY combination intervals were of approximately three seconds' duration. However, with the wholesale installation of traffic signals for every traffic ill by municipalities and other taxing bodies of every size, without thorough analysis and understanding of the problem, came the practice of operating signals with long yellow or combination yellow intervals. The resulting general disobedience on the part of vehicle operators became a habit. It might never have gained serious import, however, had the duration of the yellow interval remained universally short, not over three seconds.

We in the city of Chicago feel that the yellow interval before the green does serve a useful purpose, that of indicating an impending change of movement. In an attempt to counteract a bad habit we have, in our late installations, adopted the color sequence shown at the top. Each GY interval is of approximately 1½ seconds' duration, making a total of three seconds' warning for moving traffic to stop, while the RY interval is only 1½ seconds long. The results of operation of this sequence in Chicago have been most gratifying. Drivers receiving an indication of impending change to green in time to avoid any loss of green time are content to wait for such indication at their proper signal instead of watching for it at the signal on the cross street. It is a known fact that where the yellow indication has been eliminated before, the green drivers are prone to watch for the yellow light or its reflection on the signal on the cross street and thus to start well ahead of a safe time.

We feel that the sequence lately adopted by Chicago will tend to reduce accidents, not only by starting stopped vehicles later, but also by keeping the eyes of the driver on the street on which he is traveling.

New York City

By JOHN T. GIBALA
Assistant Engineer, Police Department

Street A:	G	D	R	R	R	R
Street B:	R	R	R	G	D	R

New York City has used two-color traffic signals having a six-interval cycle with double-interval clearance periods since 1930.

The city has tried several combinations and has found the above with the double-interval clearance periods best of all for its purpose.

As between the yellow and all-red indications for clearance period, the yellow indication does not have a universal meaning, while the red indication always has and will have only one meaning—STOP.

Massachusetts

By CLARENCE P. TAYLOR
Associate Traffic Engineer

Street A:	G	Y	RY	R	R	R
Street B:	R	R	RY	R	G	Y

My own personal opinion as to the value of using the red and yellow combination light for the WALK period is that it uses existing equipment already provided in standard traffic signal housings. No added lights or special devices are required. The red and yellow combination is to be preferred to the green and yellow combination, because the red light will tend to hold strangers who are not familiar with the indication.

The value of a period reserved for pedestrians is obvious in congested areas where there is a considerable number of vehicles making left and right turns which cross the paths of pedestrians walking with the flow of traffic. Also, when pedestrian traffic is exceedingly dense, this period facilitates the movement of pedestrian traffic materially. It is a period which timid, disabled folk can feel secure in using. It also offers protection to little children.

Experience with red and yellow periods indicate that a very high degree of voluntary obedience to it may be obtained if an audible signal, such as a buzzer or bell, is sounded continuously while it is in effect. The reason for this is that pedestrians are not prone to watch traffic lights, apparently feeling that it is more necessary to watch vehicles and where to walk.

At intersections where pedestrian traffic is light, the red and yellow period is usually allowed to be brought into the cycle only if a button is pressed on the corner by a pedestrian who wishes to cross. The period drops out of the cycle until actuated again. These pedestrian-actuated signals have proved very popular, and have been the solution for providing pedestrian protection at many intersections where vehicular traffic is heavy and swift but pedestrian traffic light.

Philadelphia, Pa.

By ROBERT A. MITCHELL
Traffic Signal Engineer

Street A:	G	GY	Y	R	R	R
Street B:	R	R	R	G	GY	Y

The present trend here is for a gradual elimination of the green-yellow overlap.

The reason for this overlap is perfectly sound; that is, to enable pedestrians to judge better when it is safe for them to cross the roadway, and at the same time to allow motorists to proceed on the green

* *"Many wondered when they saw a new kind of brick paving laid in Chestnut & Walnut Streets* what the sequel would be.*

"Well, go look at them after two years of tough wear and two particularly rigorous winters . . . an expert in paving tells me they have been quite wonderful."

—Girard in
Philadelphia Inquirer.

*NOTE—Chestnut & Walnut Streets is location of historic Independence Hall. They were brick paved in 1934.

THE PAVEMENT THAT NEVER WINTER-KILLS

● Even mild weather damages pavements which are not fully weather-resisting. Winter weather is more destructive—the winter of 1935-36 was abnormally destructive.

Notice in your pavements, the exemption from weather damage that brick pavements have. *This is an important distinction between brick and other pavement types.*

There are several definite reasons why brick resists weather damage. The surface of each brick is moisture-proof due to the vitreous fusion of its surface during the firing process. Water cannot enter to freeze, expand, spall and destroy. Asphalt joints between brick keep water out of the pavement structure, allowing expansion and contraction during wide temperature swings—hence no cracking.

Prolonged snow and ice concentrate traffic into narrow ruts. Brick has the resistance to abrasion and impact that prevents potholes, rutting and shoving.

According to official records, the winter of 1935-36 was the most severe since 1889. More than one brick pavement has served through both those record winters as well as in the 46 intervening years.

Brick pavements cost less per year of service, because they resist weather as well as traffic damage. National Paving Brick Association, (Affiliated with Structural Clay Products Inc.) National Press Building, Washington, D. C.

BRICK

FOR NEW CONSTRUCTION OR RESURFACE JOBS

light. Of course, the WALK-lens serves the same purpose, but the former requires only a three-lens signal lantern while the latter means the expense of an additional lens to each lantern.

The reason for the overlap was sound, but not enough thought was given to whether or not the method was foolproof and, unfortunately, experience shows that the disadvantages outweigh the advantages. It is probably due to this fact that the system is used only in a few cities and was never seriously considered as a national standard, yet its universal adoption might have made it successful.

Some of the most noticeable disadvantages of the sequence are:

1. Since it is not universal, out-of-town motorists usually stop when the yellow light appears, thus delaying traffic or causing rear-end collisions.

2. The duration of the green-yellow period varies in accordance with the width of the roadway, thus making it difficult for motorists, who can't help but react to the light, to judge just how much time they have to reach the intersection before the red light appears, and instead of slowing down to be prepared to stop, they put on speed to get across the intersection before the light changes. The steady increase of rear-end collisions on Broad Street, Philadelphia, is undoubtedly due to this cause.

3. Experience has shown that pedestrians pay very little attention to the signal indications and it will take a lot of education and strict enforcement to get proper observance.

Columbus, Ohio

By J. R. GUTHRIE
Traffic Engineer

Street A: G G and FR R R
Street B: R R G G and FR

The advantage found in the flashing red indication, as used in Columbus, is that it provides a positive warning to the motorist to stop, in place of the somewhat doubtful warning to "proceed with caution," which is intimated by the conventional yellow indication.

In operation, this flashing red, two-color system provides a positive stop signal by flashing three times immediately before the termination of the green indication. Following the three distinct stop flashes, the light changes to a steadily burning red.

Pre-starting, one of the bugbears of the old system, is eliminated by the signal changing directly from red to green with no previous indication to the stopped traffic that the change would be made. On the other hand, over-running the lights by "taking a chance on the amber" is utterly prevented, since few motorists would even consider deliberately disobeying the red flashes. Red, as the universal color of danger, has a much greater psychological effect than amber, which, at its best, is considered simply a warning. Thus drivers think little of proceeding after an amber light is shown but come to a prompt stop at a red.

Accident Prevention Contest of Chicago Park District Police

IN July, 1935, the Traffic Engineering Section of the Chicago Park District initiated a contest on the single subject of the submission of a report on an actual accident or hypothetical accident, by the members of each of the three police divisions. A newly adopted form was used, and the reports were examined with the following weightings in mind: completeness, 30 per cent; accuracy, 30; neatness, 10; comprehension of accident, 20; sketch of scene of accident, 10 per cent. A total of 524 reports were submitted, and the first prize was awarded to the West Division.

Encouraged by the interest shown in the July contest, the accident report was made a permanent subject for each monthly contest, with the addition for August of a questionnaire based on four lectures by authorities. There were 425 contestants, and West Division won again. Further to maintain interest, a roll of honor of 54 names was announced.

The September contest included a card of instructions to motorists to be carried by officers, the plan being for the officer to caution verbally the motorist making a minor violation and to take the license number and report the incident on the card. The Traffic Engineering Section then wrote to the motorist confirming the warning and inquiring as to the officer's manner. These warnings and replies formed the basis of the award on this subject. The contest also included a 100-word esasy on "What can I, as a policeman, do to educate the public in safe driving practice?" Participants numbered 538, and the South and West Divisions were tied. It was decided that the September results should not count toward the final possession of the trophy for either division, but that each should be entitled to display the plaque for two weeks of the month.

For the month of October the accident reports and the cards were again made subjects of the contest, as was also a questionnaire on a lecture by Judge Gutknecht on "New Uniform Traffic Acts." Judge Gutknecht pointed out that ideal traffic-law enforcement emphasized regulations and education above punishment, and the need for policemen to know the law. Article 3 applies to traffic signs, signals and markings, and a first duty is to erect more speed signs. Article 5 puts some teeth in the law against drunken driving and, by carrying a heavier penalty for a second offense, shows the necessity of maintaining a card-index system. The Act foresees more one-way streets. The officer must help to teach the pedestrian that the main causes of accident are the motorists' speed and the pedestrian's jay-walking. A safety zone is absolutely prohibited territory for vehicles. There were 517 contestants, and South Division won.

The principal subject of the November contest was a lecture on "Physical Improvements of the Parks and the Effect on Accident Prevention," by Robert H. Nau, Secretary of the Street Traffic Committee of the Chicago Association of Commerce. Mr. Nau pointed out possibilities for improvements which might be noted and reported by policemen. At many intersections there are obstructions to vision which prevent drivers from seeing each other in time. Proper crosswalks are invited. Inadequate lighting creates serious hazards, and more and better lights are needed. Traffic lanes are not sufficiently apparent at night; in some instances part of a broad pavement should be replaced by grass plots or islands. Bumps and depressions should be eliminated, and non-skid surfaces placed where needed. Red advertising signs should be discussed with the owner where they conflict with traffic lights. There were 312 contestants, and West Division won.

The December contest included a review questionnaire, rated 35 per cent, covering all the lectures given since July; and a 50-word essay, rated at 15 per cent, on "My ideas for the next police safety contest." There were 479 participants, and West Division won for the fourth time and was awarded permanent possession of the trophy.

The 1936 contest began in March.

REDUCE ACCIDENTS 35%?

Perhaps—If Your Local Newspaper Will Help

ON November 18, 1935, the National Safety Council passed a resolution urging the people to reduce motor-vehicle deaths by at least 35 per cent by the end of 1940, in each state, county and city. By this act, the Council assumed greater responsibility in the nation-wide drive to reduce traffic accidents and casualties than is indicated by the wording of the resolution. It is no great step in the public mind to the belief that the National Safety Council has accepted the burden of actually bringing about this very sizable reduction.

It is therefore with a great deal of interest and genuine applause that a new Safety Service for newspapers has been received. This consists of 24 pages, 16 x 25 inches, of highway safety features bristling with varied, striking and usable illustrations for which mats may be had for the asking.

It is quite possible that municipal officials have an excellent opportunity to do something toward getting more of this pertinent information over to the public by calling the attention of their local newspapers to the wealth of material contained in this free Safety Service.

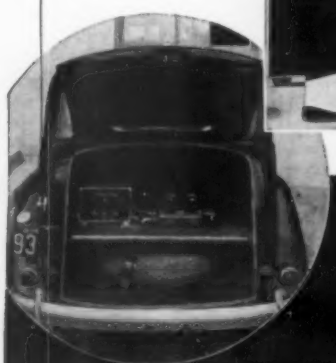
WESTFIELD POLICE TALK BACK

Hand set microphone for talking with headquarters. 18 Type Receiver at lower right.

. . . work closely with headquarters via 2-way Radio

50 Watt Transmitter in Westfield headquarters.

18 Type Transmitter and power units in patrol car. Flexible rod antenna at left.



WESTFIELD has speeded up and strengthened its police force by installing Western Electric Police Radio. This New Jersey town selected ultra high frequency equipment, which provides 2-way communication between headquarters and patrol cars.

Whether your problem is to cover a small town, a large city, a county or an entire state, you'll find a Western Electric system to meet your needs. This equipment—produced by Bell telephone makers—is now giving *added protection* to 40 million people!

For full details, write to the distributors: Graybar Electric Company, Graybar Building, New York.

Western Electric

Distributed by GRAYBAR Electric Co. In Canada: Northern Electric Co., Ltd.

POLICE RADIO TELEPHONE EQUIPMENT

Improving Municipal Administration

Current Items from the
Public Administration Clearing House

Engineers as Administrators

PUBLIC works engineers have a bigger job on their hands than supervising the water-works department, building bridges and designing streets. Although they practice one of the oldest professions in the world, they are also related to a new profession—public administration—the duties of which they should realize.

Clarence E. Ridley, Executive Director of the International City Managers' Association, makes this point in the *Public Works Engineers' News Letter*, bulletin of the American Society of Municipal Engineers and the International Association of Public Works Officials.

Public administration, by common definition, includes seven elements: planning, organization, direction, staffing, coordination, reporting, and budgeting.

An engineer, according to Mr. Ridley, is:

A planner, when he decides on a street paving job. He must, in the process of designing the street, consider present and future traffic load, traffic safety, possibility of future widening, appearance, and cost and ability of property owners to pay for it.

An organizer, when he works out the structure of the public works department so that it will function efficiently without too close supervision.

A director, if he gives the department leadership which transmits the objectives to each of the staff members, secures their acceptance and inspires morale.

A staff or personnel "man," when he sets up standards of competence for employees and provides conditions that will keep them contented.

A coordinator, when he fuses structure, leadership and personnel into "going machinery."

A reporter, when he supplies understandable information on public works activities to the chief of the city, its legislative body and the public.

A budget-maker in his duty to forecast for the city financial officer the funds needed for public works expenditures.

Most of these elements are "quite foreign to the curriculum of many engineering schools," comments Mr. Ridley, but it is up to the practicing engineer to become proficient in them.

"Engineers are engineers; but engineers are also administrators," he says. "As engineers they must continue to maintain technical competence. As administrators they must broaden their scope of interest to include a new 'discipline,' always remembering not to over-stress the technical and economic aspects of municipal activity at the expense of its 'human values.'"

Cities Unite Increasingly for Common Causes

OVER 6,000 municipalities in the United States believe there is benefit in union. According to a report just made by the American Municipal Association, 6,187 local governments are members of the 36 state leagues of municipalities, organized to further the interests of cities, towns and villages. This is an increase of 13 leagues and nearly 3,000 member cities in the past 5 years.

Nine of the leagues, as shown in the report, have close relationship with state universities: Arkansas, Colorado, Kansas, Michigan, Minnesota, Oklahoma, Oregon, South Dakota and Washington. In seven of these cases the league secretary is on the university staff.

Most of the leagues also have some connection with other governmental organizations in their state, the secretaries serving as the "link." The Secretary of the Arkansas League, for example, directs the Bureau of Public Affairs for the State University's extension service. He is also a member of the State Planning Board, and is an Associate Professor of Political Science at the University. The Michigan League Secretary directs the Bureau of Government at the University of Michigan. He is Secretary of the Michigan City Managers' Association and the State Planning Conference, a member of the Michigan State Planning Board, on the advisory board of the State Accident Fund, serves on a state education commission, on a commission on highway finance and state taxes, and is a research consultant on the Committee on Urbanism of the National Resources Board.

Training schools have from the beginning of the existence of the leagues been an important activity. Over a five-year period a total of 44,435 officials—fire, police, finance, food inspection, welfare—have attended the schools, which are usually held for a period of one or two weeks. Fifteen of the leagues provided one or more such schools in 1935.

The American Municipal Association, organized in 1924, is the national federation of these state leagues, acting as a clearing house of information for them and carrying on a wide variety of activities. One of its duties is to keep members informed of Federal legislation affecting municipal government, and to represent the interests of leagues nationally, in much the same way that the state leagues represent towns and cities before the state governments. Contact with municipal government and with the development of best practices in foreign countries is also maintained through the Association, which is a member of the International Union of Local Authorities, with headquarters at Brussels.

Combination Police-Firemen in Three Cities

SAFETY departments rendering both police and fire department service are saving money on police-fire protection costs of three small council-manager cities, according to the April issue of *Public Management*. The cities are Oakwood, Ohio, population 6,497; Coral Gables, Fla., population 5,697; and Grosse Pointe Shores, Mich., population 700. They are respective residential suburbs of Dayton, Miami and Detroit.

Oakwood's Department of Safety is composed of 15 full-time men, in addition to the City Manager, who is its active head. Two captains, one sergeant, two firemen, eight police-firemen, and two other men who serve as telephone operators, court bailiffs, and ambulance drivers, make up the personnel. Two crews, each composed of a captain, one fireman, and three police-firemen, work 24-hour shifts on general police and fire duty, while two police-firemen and the police sergeant are assigned to police duty. At the end of every month all police-firemen shift into another position, to equalize the number of hours served on night duty. All men are equipped with fire-fighting paraphernalia, in order that they may assume the duties of firemen when an alarm is sounded. Men on police duty also respond to fire alarms. Oakwood has had a Class One rating from the National Board of Underwriters every year since 1930. The total cost of the Department for 1935 was $33,873.

The 18 blue-uniformed members of the Coral Gables Department of Public Safety are regularly assigned to either police or fire duty, policemen working 9 hours a day and firemen 48 hours on duty and 24 hours off duty. A police emergency makes them all policemen, and a fire alarm calls the policemen to fire duty. This city is also rated in Class One by the underwriters. Salaries paid the 18 men amount to $31,200 a year. In addition to regular police and fire duties, they are responsible for the painting of all street signs and traffic signs, and municipally owned automotive equipment. They maintain the fire stations and fire-alarm system and municipal automobiles, and pay the expense of their target practice by reloading ammunition for other safety departments in the area.

Grosse Pointe Shores, which has no business establishment of any kind, has 13 men in its combination Fire and Police Department. Three men are on duty at all times, working eight-hour shifts. One policeman is always at the station, and two patrol the village in radio-equipped scout cars. None of the men may leave the village without permission even when off duty, and not more than four ever leave at one time. These

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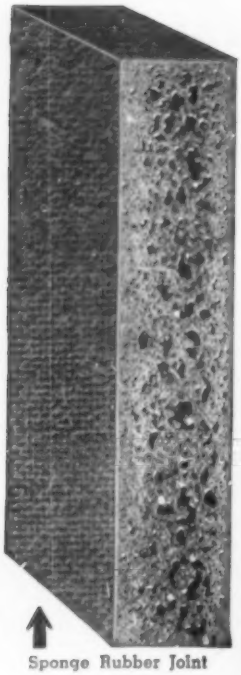

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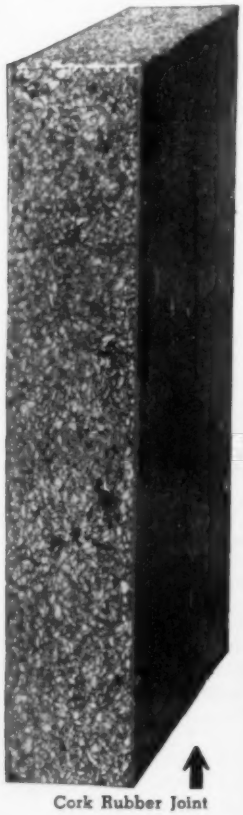

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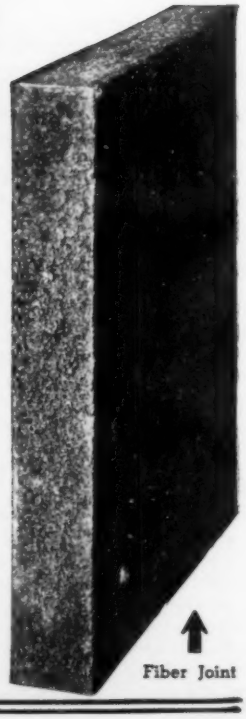

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employees live in low-cost apartments in the village hall. The average per capita fire loss in this little city for the past five years has been 19 cents, and it has a Class Six rating from the underwriters. Salaries for the 13 amount to $28,990 a year.

Tax-Exemption of Household Goods

MAINLY because the amount of taxes collected does not appear to justify the administrative difficulties and expense involved, states are gradually abandoning the assessment and taxation of household goods, according to Albert W. Noonan, Technical Director of the National Association of Assessing Officers. If they are not entirely eliminating this tax, they are raising the maximum amount of exemption so that the majority of householders will be excluded.

Mississippi recently increased its exemption from $250 to cover all household goods, thus joining the practice of Delaware, New York, Ohio and Wisconsin. In 1935 Michigan increased its exemption from $500 to $1,000, which is also the exemption in Louisiana, Massachusetts and Tennessee. While $500 worth of household goods is legally exempt in Connecticut at present, the Connecticut Special Tax Commission has recommended that the assessment of all household furniture be abandoned.

There is no standardization in the furnishings of homes, the Tax Commission points out. Nor is there any uniformity in the age or serviceability of individual pieces of furniture. "To look to the assessors to make an annual inventory of all the household furnishings in their communities and to discover their market value is to impose an impossible task, which could produce only the most absurd and inequitable results. . . . It is the judgment of the Commission that all household furniture, radios, and musical instruments which are not used for business or professional purposes should be exempt from taxation."

In the state of Washington the exemption was increased to only $300, but even this amount, according to reports of many assessors, has permitted substantial savings in administration, since it has enabled dispensing with the services of hundreds of extra employees hired annually for the assessment of such property. Fourteen states, however, still provide no exemption for household goods, Mr. Noonan comments, and in the other 23 states the amounts range from as little as $25 to $500.

"In view of the now generally admitted impracticability of attempting to assess household furnishings on anything approaching an equitable basis, and the obvious nuisance features and administrative expense such an attempt creates," says Mr. Noonan, "the low-exemption states might be better off if they abandoned the practice entirely or at least raised the exemption level to a point which would eliminate all except the owners of substantial amounts."

Water Consultants Appointed for Drainage-Basin Districts

FLOOD protection plans, consistent with the best conservation and use of waters for all purposes, are to be expedited through assignment last month of 15 water consultants to the different river drainage basins by the National Resources Committee.

In line with a policy of decentralizing and expediting the study of the major drainage basins of the country, the Committee announced that the new consultants would work in the field in cooperation with state and regional planning organizations. The program contemplates a developed or long-range plan for each important drainage basin in the United States, and a priority list of projects for its execution.

The drainage basin districts and the water consultants' assignments are as follows:

District 1.—Prof. H. K. Barrows, 6 Beacon St., Boston, Mass.

Drainage basins in Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut and New York, including the Housatonic as the westernmost basin.

District 2.—James F. Sanborn, Room 1725, 30 Church St., New York.

North Atlantic drainage basins in Connecticut, New York, Pennsylvania, New Jersey and Delaware west of the Housatonic and including the Susquehanna as the most westerly drainage basin.

District 3.—William McKinney Piatt, 401 Depositors National Bank Bldg., Durham, N. C.

Chesapeake Bay and South Atlantic drainage in Maryland, Delaware, West Virginia, Virginia, North Carolina and South Carolina, south of the Susquehanna basin, including Port Royal Sound drainage as the most southerly basin.

District 4.—Dean Blake VanLeer, University of Florida, Gainesville, Fla.

South Atlantic and Eastern Gulf drainage in South Carolina, Georgia, Florida, Alabama and Mississippi from the Savannah basin on the northeast to Mobile basin on the southwest, both inclusive.

District 5.—Fred. H. Weed, 1123 Carew Tower, Cincinnati, Ohio.

Ohio River drainage in New York, Pennsylvania, Maryland, West Virginia, Virginia, Kentucky, Tennessee, Ohio, Indiana and Illinois.

District 6(a).—Royce J. Tipton, 2083 Clermont St., Denver, Colo.

Southwest Gulf of Mexico drainage, south and west of Vermilion River, Louisiana, and including drainage in the United States entering the Rio Grande south of Fort Quitman, Texas.

District 6(b).—Gerard H. Matthes, Mississippi River Commission, Vicksburg, Miss. (By detail from Corps of Engineers, Mississippi River Commission.)

The Alluvial Mississippi basin and Gulf of Mexico drainage, in the states of Mississippi, Tennessee, Kentucky, Missouri, Arkansas and Louisiana, from Pascagoula River on the east to Vermilion on the west, both inclusive, and northerly to the mouth of the Missouri; excluding the main drainage basins of the Red, Arkansas, Missouri and Ohio basins, but including the White and St. Francis basins to the west and drainages lying west of the Mobile River basin to the east.

District 6(c) *and* 6(d).—Wesley W. Horner, 1325 International Bldg., St. Louis, Mo.

Western Mississippi River drainage in Louisiana, Texas, New Mexico, Colorado, Oklahoma, Kansas, and Missouri, from the Red River basin northwardly to the Arkansas basin, both inclusive.

District 7(a).—Wesley W. Horner, 1325 International Bldg., St. Louis, Mo.

Mississippi River basin drainage north of the Ohio and Missouri basins, in Missouri, Iowa, Minnesota, Wisconsin, Indiana, and Illinois.

District 7(b).—LeRoy K. Sherman, 53 W. Jackson Blvd., Chicago, Ill.

Great Lakes and St. Lawrence River drainage in Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, New York and Vermont.

District 8.—Prof. S. T. Harding, University of California, Berkeley, Calif.

The northerly portion of the Missouri River basin, to and including the basin of the Platte River on the west side, and to and including the basin of Mosquito Creek on the east side, in Iowa, Minnesota, South Dakota, North Dakota, Montana, Wyoming, Colorado and Nebraska.

District 9.—Frederick H. Fowler, 4308 Interior Bldg., Washington, D. C.

The portion of the Missouri River basin south of the basin of the Platte River on the west side and south of the basin of Mosquito Creek on the east side, in Missouri, Iowa, Nebraska, Colorado, and Kansas.

District 10(a).—J. C. Stevens, Spalding Bldg., Portland, Ore.

The Colorado River basin in Arizona, New Mexico, Colorado, Wyoming, Utah, Nevada, and California.

District 10(b).—Walter L. Huber, 1325 Crocker First National Bank Bldg., San Francisco, Calif.

The Great Basin drainage in California, Nevada, Utah, Wyoming, Idaho, and Oregon.

District 10(c).—Ralph I. Meeker, 303 Flat Iron Bldg., Denver, Colo.

Southwest Pacific drainage in California and Oregon, to and including Smith River basin on the north.

District 11.—Prof. Samuel B. Morris, Leland Stanford University, Palo Alto, Calif.

Northwest Pacific drainage in Oregon, Nevada, Utah, Idaho, Wyoming, Montana and Washington, from and excluding Smith River basin on the south.

As announced on page 5 of THE AMERICAN CITY last month, the director of this special study is Frederick H. Fowler of San Francisco. The work will be conducted in cooperation with regional and state planning boards and the Water Resources Committee of the National Resources Committee.

A Letter to the Editor

To the Editor of THE AMERICAN CITY.

Your April number tells about Stockholm, Sweden, buying 20,000 acres of land, 9 miles from its center, for $6,000,000 for a housing scheme.

Why does a city of 500,000 people have to go a distance equal to the Bronx Borough from New York City Hall, to get *raw undeveloped* farm land to build homes, for your article states $8,000,000 was spent on streets, sewers, etc.

Its workers have a long, wearisome 9-mile trip daily, through nearer lands, held out of proper use by high, speculative prices.

My seasoned judgment is that there is no housing problem, but only *the land problem*, whether it is Sweden, England, or the U. S. A.

T. A. McHENRY.

New York, April 17, 1936.

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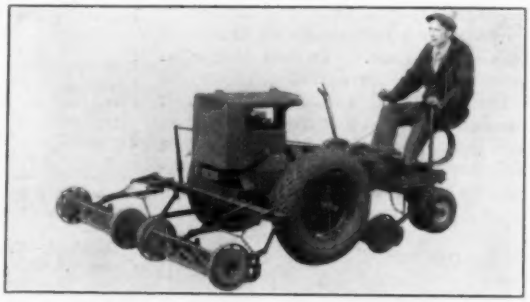

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Prepared by
FRANK B. WILLIAMS
Author of "The Law of
City Planning and Zoning"

Zoning and Planning Notes

From Data collected
by the Zoning Committee
of New York
(233 Broadway)

Zoning — Consent of Property Owners

ILLINOIS.—Klumpp v. Rhoads, 200 N. E. 153 (Supreme Court, February 14, 1936).—The zoning ordinance of the city of Peoria providing that it should not be lawful to locate in any street in the city in which two-thirds of the buildings on both sides of the street are used exclusively for residence purposes any building for certain purposes, without the consent of two-thirds of the property owners, according to frontage on both sides of the street, is unreasonable and invalid. Under this ordinance such consent must be obtained from all owners on the street, regardless of its length. If the business is to be located in the first block of the street, the property owners at the other end of the street, however distant, should have as much voice in the consent as the owners of property adjacent to the proposed locations. The street in question is eight blocks long. A witness testified that the value of property one block away would not be affected by the proposed building.

Zoning—Public Property—Res Adjudicata

MARYLAND.—*Mayor and City Council of Baltimore v. Linthicum*, 183 Atl. 531 (Court of Appeals, February 20, 1936).

Linthicum owns a lot in a residential zoning use district in the city of Baltimore and has leased it to the United States for a substation post office. An application for a permit for such use was refused on the ground that the contemplated use was a business use prohibited for such a district by the zoning ordinance of the city.

The zoning ordinance prohibited the Board of Appeals from taking action on similar applications until six months after the disapproval of a former application. In this case the owner has made three applications for the permit to the Board of Appeals, each more than six months subsequent to the prior one. It is conceded that there has been no change in the facts.

This Court holds that, although not forbidden by the zoning provisions, this proceeding is banned by the rule of law known as "res adjudicata," limiting parties to one final decision in one controversy between them.

It is therefore unnecessary to pass upon the contention of Linthicum, the owner of the land, that the city cannot, under the police power of the state, prevent the United States from using the lot for a business use. It may, however, be observed that the property is not owned by the United States, but only leased by it for ten years; and the lessee has only such property rights as may be derived from the owner. The property is therefore not within the exclusive jurisdiction of the United States under the United States Constitution.

EDITOR'S NOTE.—For other cases with relation to zoning public property see the New York case of *O'Brien v. Town of Greenburgh* in these Notes for March, 1933, with note, and the New York case of *People v. Simmons*, in these Notes for November, 1932.

Filling Station

NEBRASKA.—*Coulthard v. Board of Adjustment of the City of Neligh*, 265 N. W. 530 (Supreme Court, March 6, 1936).—The plaintiff is seeking for a permit to erect a filling station, in a residential district adjacent to a business district. The zoning ordinance of the city provides that:

"No business building shall be erected in a residence district for store or other business purposes, . . . However, in those portions of the residential district adjacent to other districts herein provided for, the City Council shall authorize such structures and uses as are in accord with its normal and continuous expansion of business structures into the adjacent residence district."

The City Council, sitting as a board of adjustment, denied the plaintiff's petition. On appeal to it, this Court holds that such denial was arbitrary and discriminatory and grants plaintiff's petition. The Council has granted a permit to erect a filling station in a similar lot across the street. Both were zoned as residential district adjacent to a business district. In both cases the other side of the street was a business district. They were divided by an intersecting street. The state highway, which made both locations desirable for filling stations, passed both properties.

Zoning Variance—Garage

NEW YORK.—*Matter of Ward*, Supreme Court, Appellate Division, reported in *New York Law Journal*, March 21, 1936, p. 1451.—On an application by a landowner to vary the application of the Zoning Resolution of the city of New York, by allowing the construction of a gasoline filling station in a business district, on the ground of practical difficulties or unnecessary hardship in its strict enforcement preventing such construction there, the application was denied by the Board of Standards and Appeals of the city. This decision the Court sustains, saying:

"The record fails to disclose such exceptional circumstances as alone justify relaxation in peculiar cases of the restrictions imposed by the [Zoning] Resolution. The financial situation or pecuniary hardship of a single owner does not warrant the exercise of the power thus to affect the property of other owners and the public generally (*Y. W. H. Assn. v. Board of Standards and Appeals*, 266 N. Y. 270). If the present application should be allowed because the property involved adjoins an unrestricted district, all other owners thereafter in the same situation would be entitled to like relief, and soon the purpose of the zoning regulation would be entirely defeated. To hold that the presence of the elevated railroad warrants a variation in this case would be unfair to the owners of other property along the railroad unless all such property were treated alike. This would mean a new classification of property, which is a matter for legislative rather than judicial action" [*i. e.*, for an amendment of the zoning regulation, rather than resort to a board of appeals, to vary them].

EDITOR'S NOTE.—The case of *Young Women's Hebrew Association v. Board of Standards and Appeals*, upon the authority of which this case is decided, is given in these Notes for May, 1935. See also the case of *Matter of Levy v. Board of Standards and Appeals*, in the Notes for August, 1935.

Cemeteries

NEW YORK.—*Moore v. United States Cremation Co., Lim.*, Supreme Court, Nassau County, reported in *New York Law Journal*, March 12, 1936, p. 1286.—The defendant is a business corporation. It proposes to use the land in question for the cremation of dead human beings, the placing of the ashes in urns, the erection of columbaria, and the disposition of the urns therein.

The Court holds that this is use of the land for "crematory purposes," under the Membership Corporation Law of the state. Formerly, to constitute such use, there must be the placing of the body in a mausoleum or in the earth; but the law has been amended to include cremation and its ordinary incidents. This use it permitted only to cemetery corporations, and not to business corporations, such as the defendant. And the fact that the zoning ordinance permits this land to be used for a crematory, does not make such use lawful.

EDITOR'S NOTE.—Similarly, a slaughterhouse permitted in a given zone in the zoning regulations may not be located there contrary to the regulations of the board of health. *New York, In re Benfish Construction Co.*, Notes for June, 1931; *Bruzzere v. Department of Health*, Notes for October, 1932.

Non-Conforming Use

NEW YORK.—*Village of Mamaroneck v. Country Club Beach Operating Co.*, Supreme Court, Westchester County, reported in *New York Law Journal*, March 5, 1936, p. 1162.—The Country Club was located in a zoning district in which the parking of automobiles was forbidden. The ordinance allowed the continuance of a non-conforming use existing at the time of the adoption of the ordinance. At that time the Club was parking cars in land known as lots Nos. 18, 19, and 20.

This complaint was filed because of the increased use of these lots for parking; but the right to utilize the lots for this purpose is not affected by the number of cars so using them. The improvement of the lots by grading and spreading cinders, and the enlargement of the club-house, are also immaterial.

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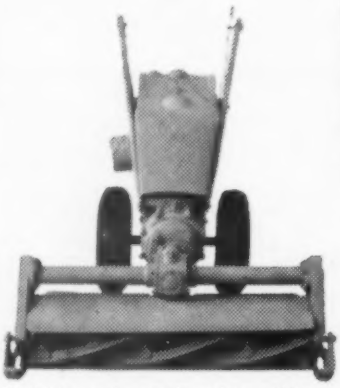

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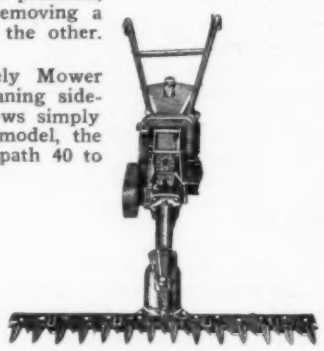

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Land Subdivision

VIRGINIA.—*City of Danville v. Forest Hills Development Corporation*, 182 S. E. 548 (Supreme Court, November 14, 1935).—The Forest Hills Development Corporation had acquired and developed a tract of land contiguous to the city of Danville, and at its own expense laid out and paved streets, and sidewalks, and constructed under them water, gas, and sewer mains, and installed fire hydrants, electric lines, and street-lighting equipment. This equipment connected with similar equipment within the city, and the owners of lots in the development paid the city for the water, gas and electricity received by them from it. The Forest Hills Development Corporation paid the city for the electricity used for street lighting and the water for the fire hydrants.

Thereafter the city annexed the land in this development, and the Development Company, making no claim for the sidewalks and streets, sued the city for the value of the water, gas and sewer mains, fire hydrants and lighting equipment appropriated by it.

The Court held the Development Company not entitled to compensation. The equipment in question did not belong to the Development Corporation, but had been dedicated by it to the lot owners in the subdivision, the value of which doubtless was included in the price charged for the lots sold.

Nor was any injustice done the Development Company, for, as the Court says in its opinion:

"When the Forest Hills Development Corporation constructed the improvements on the property in question, it was done in order to make the lots in the development saleable. . . . The Corporation did not, and could not have expected to, derive any revenue for the gas, water and electricity furnished to its purchasers by the city . . . on the other hand, the Corporation was relieved of the cost of the future maintenance of the facilities mentioned. . . . The Corporation was also relieved of the expense of lighting its streets and the water supply of its hydrants, which it had to pay the city before the annexation."

Mr. Alfred Bettman, in commenting upon this case, in the *News Letter* of the American Society of Planning Officials for February, 1936, points out its significance as follows:

"The case did not arise out of subdivision regulations, but it bears on one of the important questions of subdivision regulation. Subdivision regulations often require the subdivider, as a condition of the acceptance of his plat, to install water mains, sewer connections and other utility services, and the validity of a requirement of that nature is a question which has arisen and will again arise for decision by the courts. This case furnishes support to the reasonableness of such a regulation. For if, upon the annexation of a subdivision without the consent of the subdivider, the community may take over the installations without paying for them, that leads logically to or at least furnishes argument in favor of the contention that the cost of the installation of these facilities is properly chargeable to the subdivider, and that, therefore, the community may reasonably require such installation as a condition of obtaining public services such as water and drainage."

Residential District

WISCONSIN.—*State v. Mueller*, 265 N. W. 103 (Supreme Court, February 4, 1936).—An ordinance prohibiting the keeping of more than two dogs over three months of age in residential districts in which two or more occupied residences were as far apart as 1,000 feet, is valid.

Oil Drilling in Oklahoma

The Committee on City Planning and Zoning of the National Fire Protection Association, under date of March 5, 1936, has issued, in typewritten form, a valuable report on the zoning of oil drilling in Oklahoma City.

In 1923 the Oklahoma State Legislature conferred upon the legislative bodies of Oklahoma municipalities the power to pass zoning ordinances, and under it, Oklahoma City passed a zoning ordinance. Subsequently oil was discovered in the vicinity of the city, and later, within the city boundaries the limits within which drilling was allowed under the zoning ordinance were extended and there was a clamor for further extensions. The dangers to health and general welfare, and especially the fire hazard, rapidly increased and much opposition developed, powerless to combat the demand for the profitable utilization of land for oil production. The opponents of extension then proposed an amendment to the city charter prescribing that henceforth the oil drilling limits within the city should not be extended without the approval of a majority of the voters in the city at a general or special election. Those in favor of this amendment petitioned the Common Council of the city to submit it to the required referendum. The legality of this procedure was judicially raised and sustained by the Court.

Instead of limiting the drilling limits within the city, the amendment has had the effect of extending them, the electors voting in favor of such extensions. Wells are now to be found near the stone mansion of the Governor of the state, and the State Board of Affairs has invited bids for oil leases on state property surrounding the capitol, although the drilling limits do not as yet embrace this land.

In conclusion the report says:

"While the Committee is exercised over the situation because of the dangers involved in the invasion of Oklahoma City business and residential (including some of the finest) districts, it also deplores the precedent which is being established of predicating the extension or amendment of a city zone upon the results of a popular vote—a procedure which is not possible under any other zoning ordinance of which the Committee knows, and which in Oklahoma City was advocated in the hope that it would present further extensions, whereas it has thus far had the opposite effect because of the greed and successful propaganda of oil companies and owners of land believed to contain oil."

Indexes to the Zoning and Planning Notes by Frank B. Williams, which have been a regular monthly feature of THE AMERICAN CITY since June, 1923, will be found in the annual volumes of The Municipal Index beginning with 1930.

The Municipal Bond Market

Recent sales of new issues from the April numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
150,000	Torrington, Conn., Notes	1.25	1-5 Ser.	1.16
128,000	Brockton, Mass., Pavement	1.25	2.85 Avg.	1.18
840,000	Marion Co., Ind., Advancement Fund	2	5.85 Avg.	1.93
300,000	Port of Portland, Ore., Airport Site	2.75	5.16 Avg.	2.27
450,000	Milwaukee Co., Wis., Metropolitan Sewerage Area	2.5	11-20 Ser.	2.43
2,650,000	Minnesota, Trunk Highway	2.5	14 Avg.	2.45
150,000	Duluth, Minn., Municipal Unemployment Project	2.6	10.66 Avg.	2.58
121,000	Oneida, N. Y., Hospital	2.60	17 Avg.	2.58
1,000,000	Buffalo, N. Y., Work Relief and/or Home Relief	2.70	1-10 Ser.	2.69
315,000	Danbury, Conn., Corporate Construction Water	3	17.25	2.88
445,000	Covington, Ky., Water Filtration Plant	3	17.85 Avg.	2.95
180,000	Muncie, Ind., River Interceptor	3	15 Avg.	2.99
150,000	Toledo, Ohio, Park Refunding	4	8.5 Avg.	4
100,000	Franklin Co., Tenn., Courthouse	4	1-20 Ser.	3.00
107,000	Stanly Co., N. C., Jail, and School	3.25	16.85 Avg.	3.449
154,000	Morristown, N. J., Improvement	3	1-31 Ser.	3.94
493,000	Akron, Ohio, Street Improvement	4	15 Avg.	3.95

Recent City Manager Appointments

W. E. BRACKETT, of Oakland, Maine, declined the opportunity to become the first City Manager of Eastport, Maine, and Edward C. Peterson, City Manager of Washburn, Maine, was given the appointment. He took office late in April.

Herman P. Bell, local engineer, has been appointed City Manager of Washburn to succeed Mr. Peterson.

J. H. Immel, WPA project engineer, was appointed City Manager of Northampton, Pa., which fills the vacancy created by Hale A. Guss's resignation some weeks ago.

CLARENCE E. RIDLEY,
Director, International City Managers' Association.

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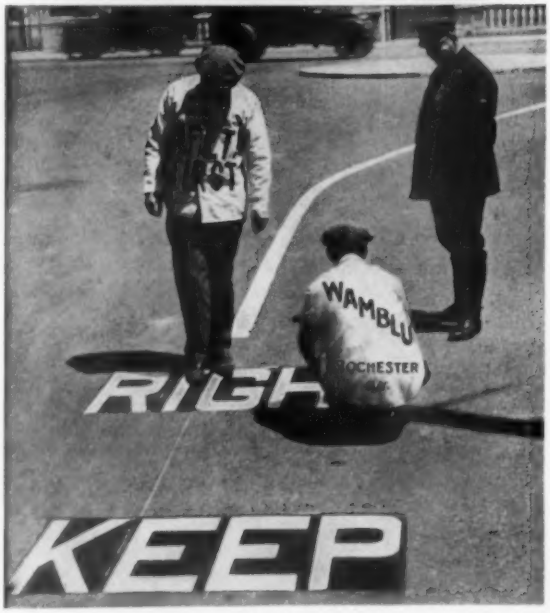

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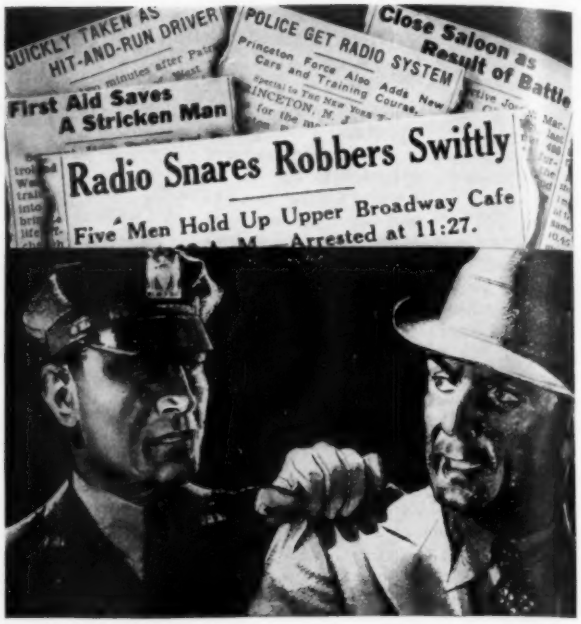
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The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

Evidence held to warrant finding that city was negligent in maintaining viaduct over street with only 8-foot clearance (Alabama Supreme Court: *City of Birmingham v. Latham*, 162 So. 675).

Contracts

Charter requirement for award of contracts to lowest bidder held violated by ordinance fixing minimum wage for employees of contractors on public work (Missouri Supreme Court: *Hillig v. City of St. Louis*, 85 S. W. 2d, 91.)

Under constitutional debt limit, city held not liable on contract for street lighting after exhaustion of appropriation therefor (Oklahoma Supreme Court: *Public Service Company of Oklahoma v. City of Tulsa*, 50 Pac. 2d, 166).

City having deducted from pier construction price amount of damages stipulated in contract for delayed completion held not entitled to recover actual damages (New York Supreme Court, Appellate Division: *New York Dock Co. v. City of New York*, 283 N. Y. Supp. 2).

City held entitled to cancel contract for removal of sludge for sewage disposal plant for contractor's delay in performance (Georgia Court of Appeals: *City of Atlanta v. Wise*, 181 S. E. 882).

Hospitals

Contract between city and hospital—text of which is fully set forth in opinion—for treatment of indigent persons held valid and a "necessary" municipal expense not requiring electoral assent. (North Carolina Supreme Court: *Martin v. City of Raleigh*, 180 S. E. 786).

Municipal Funds

City held not liable to taxpayers for misapplication of funds, although misapplication might be enjoined and guilty officials might be held liable. Official duty to transfer funds held enforceable only by mandamus, which Federal court could not issue (United States Circuit Court of Appeals, Ninth Circuit: *Fox v. City of Pasadena*, 78 Fed. 2d, 948).

Municipal Utilities

City held enjoinable against use of water-works funds for generation of electricity and against pledging plant revenues to secure payment of mortgage bonds, with provision that foreclosure sale purchaser should have exclusive franchise to operate water system (Ohio Court of Appeals, Coshocton County: *Ohio Power Co. v. Craig*, 197 N. E. 820).

Municipality operating electric plant held entitled to charge rates yielding fair return on value of plant (New York Supreme Court, Albany County: *Village of Boonville v. Maltbie*, 281 N. Y. Supp. 787).

Act creating light, heat and power district in Albany County upheld, excepting so far as authorizing tax burden on property outside district (New York Court of Appeals: *Gaynor v. Marohn*, 198 N. E. 13).

Police Measures

Los Angeles ordinance forbidding solicitation of damage claims for settlement upheld (California Superior Court, Appellate Department, Los Angeles: *People v. Levy*, 50 Pac. 2d, 509).

Ordinance penalizing fraudulent advertising—provisions of which are set forth in opinion—upheld (Washington Supreme Court: *City of Seattle v. Proctor*, 48 Pac. 2d, 241). But an ordinance restricting right to advertise goods as "values up to" a certain price held invalid as an undue interference with advertising (Same court: *City of Seattle v. Proctor*, 48 Pac. 2d, 238).

Pool Halls

Ordinance prohibiting snooker halls held authorized under statutory authority to prohibit pool and billiard halls (Oklahoma Supreme Court: *Whitson v. City of Cherokee*, 46 Pac. 2d, 907).

Public Utilities

City held entitled to oust telephone lines from streets on expiration of franchise (Missouri Supreme Court: *State v. Missouri Standard Telephone Co.*, 85 S. W. 2d, 613).

City held entitled to rebate on electricity furnished by power company, under contract provision for rebate on reduction of charge to other consumers (Kentucky Court of Appeals: *Union Light, Heat & Power Co. v. City of Ft. Thomas*, 87 S. W. 2d, 103).

Salaries

Omission of provision for civil service board secretary's salary from city budget held not to relieve city from salary liability (Louisiana Court of Appeal: *Lilley v. City of Shreveport*, 163 So. 722).

Employees accepting reduced salaries to prevent reduction of force as economy measure held unable to afterwards recover amounts deducted (Tennessee Court of Appeals: *Steele v. City of Chattanooga*, 84 S. W. 2d, 590).

Sewers

Farmer held to have failed to prove right to more than nominal damages on account of pollution of river through city's discharge of sewage (Oklahoma Supreme Court: *Oklahoma City v. Hopcus*, 50 Pac. 2d, 216).

Special Assessments

Owner of property held to have waived claim that it did not abut upon street improved by omitting to object to assessment or appeal (United States District Court, Northern District Alabama: *Cowan Investment Corp. v. City of Florence*, 11 Fed. Supp. 973).

Street railway held subject to street-paving assessment (Georgia Supreme Court: *Georgia Power Co. v. City of Decatur*, 182 So. 32).

Abutting property held not chargeable with cost of street paving on mere theory of benefit, apart from contract or statutory obligation to pay (Georgia Court of Appeals: *City of Hoganville v. Daniel*, 182 S. E. 78).

Streets

Public easement in street for purpose of travel held not to justify construction of sewage sterilization plant as against abutter's complaint (New Jersey Court of Errors and Appeals: *Faulks v. Borough of Allenhurst*, 180 Atl. 877).

City held to have discretionary power to determine what streets should be vacated in a railway-track elevation proceeding (Indiana Supreme Court: *Neff v. City of Indianapolis*, 198 N. E. 328).

Traffic Regulations

Parking ordinance held ineffectual where signs conforming to statutory requirement were not maintained (Vermont Supreme Court: *State v. Noyes*, 180 Atl. 893).

Ordinance providing for impounding illegally parked cars and detention for $5 impounding fee upheld (Ohio Court of Appeals, Hamilton County: *Jackson v. Copelan*—Cincinnati, 198 N. E. 596).

Water Supply

Ordinance prohibiting boating on lake used as city water-supply source held valid, subject to island owner's right to access (Louisiana Supreme Court: *City of Shreveport v. Wilkinson*, 162 So. 621).

Contract by one city (Ft. Smith) to sell surplus water supply to another city (Alma) upheld (Arkansas Supreme Court: *McGehee v. William*, 87 S. W. 2d, 46).

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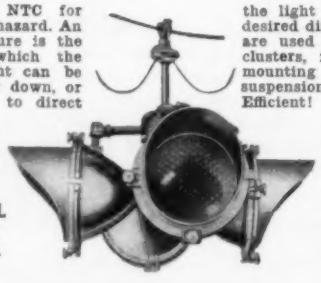

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Municipal and Civic Publications

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Planning and Housing

City Planning and Housing: First Volume of Text: Historical and Sociological.—By Werner Hegemann, with a Preface by R. M. MacIver. Architectural Book Publishing Co., New York. 1936. XIX + 257 pp., 30 illustrations. $3.75 from THE AMERICAN CITY.

This book ought to have a wide field of usefulness, not primarily as a treatise for technicians, but chiefly as a stimulus to more general and more intelligent public concern with problems of city planning and housing. The author points out in his Introduction that: "The present volume tries to avoid dwelling on such phases of the subject as have recently been dealt with by other writers, unless there is some hope of presenting a sufficiently different point of view," and that he "makes a liberal use of such quotations of old and new statements as seemed to the author capable of confirming such of his views as do not conform to current prejudice or as might otherwise appear paradoxical."

Dr. Hegemann does not restrict himself to aids and warnings from previous decades. He discusses problems of such acute present interest as compensation for slum owners; the need for re-zoning our cities; and the relationship between prosperity for labor and good housing for laborers. The concluding chapters discuss the "hope or danger" of seeing the Viennese housing experiment repeated in America, and the question, "Why does America neglect the Stockholm example?"

The publication of this Historical and Sociological volume antedated by less than a month Dr. Hegemann's untimely death, in New York, on April 12. It is to be hoped that his work on the second volume, on Political Economy and Civic Art, which had been announced as in preparation, will be found to have been sufficiently far advanced to make its publication possible.

Planning

Under the title of "Planning for the Future of American Cities," the Proceedings of the Joint Conference on City, Regional, State and National Planning, held in Cincinnati, May 20-22, 1935, has been published by the American Society of Planning Officials. This volume continues, in a uniform size and similar format, the series of proceedings of planning conferences which had been published annually since 1911 by the National Conference on City Planning. The papers and discussions are grouped under eight main heads: Must American Cities Decay?; The Planning Process as a Remedy; Rehabilitation of the Blighted District: A Cooperative Enterprise; State Planning and Urban Communities; Federal Activities and Urban Planning; Planning Administration; Closing Dinner Session; Resolutions of the Conference. 196 pp. $2.00. (Apply to the Society, at 850 East 58th Street, Chicago, Ill.)

Housing

In the interests of public understanding of the need for low-rent housing in the United States, the National Public Housing Conference has printed and is distributing the following pamphlets: (1) "Land Prices and the Courts," by Irving Brant, Editor, *St. Louis Star-Times*, 16 pp; (2) "Dollars and Houses," by Evans Clark, Chairman of Board of Directors, National Public Housing Conference, 18 pp. Each pocket size. The first of these two pamphlets presents the author's argument that "the power of Congress to raise and spend money to provide for the general welfare . . . includes the power of Congress to render effective, by supporting legislation, any appropriation it makes for the general welfare, including appropriations for slum clearance and public housing." The second is an economic brief on low-rent housing in relation to government subsidies and private capital, leading to the conclusion that "public low-rental housing, financed by a combination of public funds and private capital, is one of the great developments of American economic life calling for decisive action in the 1936 session of Congress." (Apply to the Conference, 112 E. 19th St., New York.)

Government and Administration

The Municipal Year Book, 1936.—Clarence E. Ridley and Orin F. Nolting, Editors. International City Managers' Association, 850 East 58th Street, Chicago. 1936. 475 pp. Cloth-bound. $4.00.

Again THE AMERICAN CITY welcomes the publication of this annual, with its wealth of timely and important data on a wide range of events and developments in municipal government and administration—most of them outside the field of municipal public works to which our own yearbook, THE MUNICIPAL INDEX, is mainly devoted.

This, the third issue of The Municipal Year Book, is much larger than the previous volumes. Part I opens with an article on "The State of the Nation's Cities," by Professor John M. Gaus of the University of Wisconsin, followed by comprehensive summaries under 23 subject headings.

Part II is devoted to a discussion of local governmental units in the United States. Among other features are a list of the number of such units by types and states; an analysis of pertinent facts with regard to metropolitan districts; summaries of numerous inter-governmental arrangements for cooperative action; and for each of the 960 cities of over 10,000 population such information as population, area, form of government, number and terms of councilmen, election date, number of registered voters, number of votes cast in last councilmanic election, population over 21, and utilities owned and operated.

Municipal personnel is the subject of Part III, over 100 pages being included in this section. Part IV is devoted to municipal finance, the subjects covered including trends in municipal debt; an analysis of constitutional and statutory debt limits; state control of local finance and accounting; and a discussion of Federal grants-in-aid.

A new feature in Part V, "Sources of Information," is a list of model municipal ordinances. This section also outlines the services and information available from 150 Federal agencies and from many national organizations, selected books, pamphlets, and reports published in 1935, and a selected list of periodicals of value to municipal officials.

Social Security

A symposium of 16 articles on Social Security has been reprinted from the *National Municipal Review* for March and April, 1936, and edited by Joseph P. Harris, Director of Research, Committee on Public Administration of the Social Science Research Council. The Introduction, in answer to the question, "Can We Secure Social Security?" is furnished by Dr. Harris. The articles are grouped under these divisions: General Consideration; Social Insurance as a Means of Providing Social Security: Unemployment Compensation and Old-Age Insurance; Public Welfare Measures Under the Social Security Act: Health, Sickness, and Social Security. 100 pp. $1.00. (Apply to the National Municipal League, 309 E. 34th St., New York.)

Tree Planting

In preparation for the observance, in 1937, of the Sesquicentennial Celebration of the formation of the Constitution of the United States, the American Tree Association is sponsoring the nation-wide planting of trees in memory of the framers of the Constitution. An inspiring pamphlet has been issued by the Association, reprinting the Constitution, and emphasizing the forward look of the young nation, and the appropriate evidence of faith in the future involved in the planting of memorial trees. Suggestions are made for plantings by individuals, clubs, civic bodies, colleges and schools, national associations, counties, states, the PWA and other organizations, with specific instructions for tree plantings, selections of trees for different sections, and a list of Arbor Days throughout the country. 32 pp. (Apply to the American Tree Association, 1214 Sixteenth St., Washington, D. C.)

Water and Sewage Analysis

A Laboratory Manual for The Chemical Analysis of Water and Sewage.—By E. F. Eldridge, Research Assistant, Engineering Experiment Station, Michigan State College; and F. R. Therous, Assistant Professor of Civil Engineering, Michigan State College. First edition. Edwards Brothers, Inc., Ann Arbor, Mich. 1935. III + 201 pp. $2.00; 20% discount on 10 or more copies.

The authors have provided a much-needed aid to the average water and sewage works laboratory man, whether he is entirely without chemical education, or has had some training in chemistry but only infrequent opportunities to make laboratory determinations. A regular chemist will find it a useful and convenient reference book, and the sanitary engineer will find it invaluable in studying the characteristics of polluted streams, water or sewage.

The book is divided into three sections and an appendix. The first section is devoted to a carefully worded description of methods of analysis of water, sewage and polluted water, which are readily understandable and easily followed. The second section deals with the preparation of the necessary stock standard solutions, reagents and the solutions used in analyses, and this section, like the first, is simple and understandable. The third section is devoted to an elementary discussion of chemistry as applied to water and sewage analyses and to the preparation of the necessary solutions and reagents. This section shows the "why" of the two previous sections and will settle the doubts in the mind of any laboratory man.

The appendix is a series of short valuable descriptions on sampling, and on care of laboratory equipment, and contains suggested convenient forms for recording laboratory data and water and sewage treatment plants, lists of equipment for six types of plants and requirements for laboratory analyses, and several pages of very useful general chemical data.

Water Supply

Water Supply Problems in the Tropics of Spanish America.—By George C. Bunker, Consulting Engineer, Panama City, Panama. A reprint of a paper presented before the New England Water Works Association and published in the "Journal" of that Association. Vol. L, No. 1.

This 104-page paper, with its discussion, presents to those interested in water supply and trade in Central America, a complete picture of the water-supply situation, and sanitation as reflected in the quality of water supply. The author discusses in considerable detail all the phases of meteorology, topography, local customs and finances which reflect upon the problem of improving the water supplies of the tropics of Spanish America. Copies of this reprint may be secured from THE AMERICAN CITY or from the author, George C. Bunker, P. O. Box 65, Ancon, Canal Zone.

Cancer Control

The first issue of the *Quarterly Review*, published by the New York City Cancer Committee, appeared in April. Its 16 pages contain forceful material in the field of cancer education, with an editorial introduction by Dr. John C. A. Gerster, Chairman of the Committee. The contents are: "The Present Status of Cancer Control," by C. C. Little, Sc.D., Managing Director, American Society for the Control of Cancer; "Distribution of Cancer in the United States in 1934," by Frederick L. Hoffman, LL.D.; "Ten Years of Growing," by Susan M. Wood, Executive Secretary, New York City Cancer Committee; and a two-page pictorial display of facilities available for the patient's diagnosis and treatment from early times to the present, with a brief, direct statement of the patient's own responsibility. (Apply to the New York City Cancer Committee, 150 E. 83d St., New York.)

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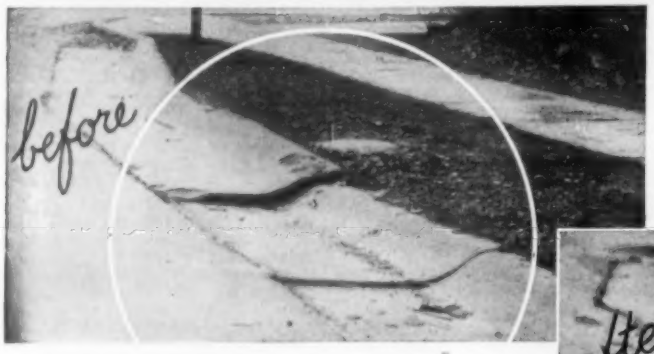

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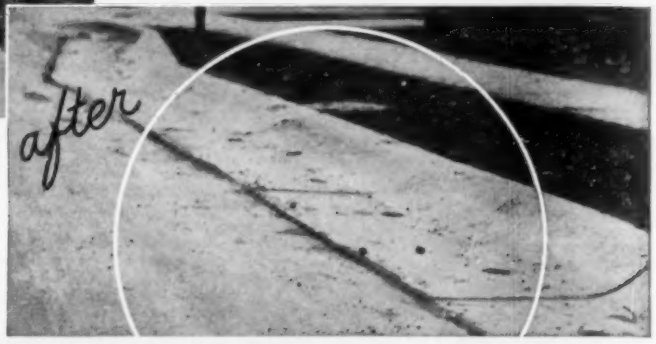

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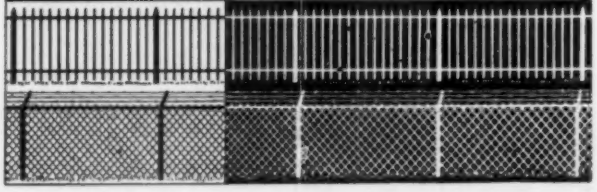

Libraries

Portrait of a Library.—By Margery Closey Quigley, Librarian, and William Elder Marcus, President, Board of Trustees, Free Public Library, Montclair, N. J. D. Appleton-Century Company, New York. 1936. *XI* + 191 *pp. Illustrated.* $2.00 *from* THE AMERICAN CITY.

The purpose of this book is stated on the title page: "To help trustees and students of library work understand the administrative problems of libraries." The library whose portrait is analyzed is the one with which the authors are connected—a progressive institution in a residential suburb of 43,000, 14 miles from New York, 5 miles from Newark. The discussion takes the broad view first: of the civic factors which affect library development—different in different places; of the obligations resting upon the suburban library; of its assets; and of the competition of interests which it may have to meet. The study f the Montclair Library embraces the problems which are common to most libraries in residential suburbs, thus offering to other libraries the opportunity for comparison.

Here is a *library system*, not merely a little building containing books. The library's responsibility to the community is met in special ways: service to children; in the schools; accommodating individual readers; readjusting policies as the community develops; building up and maintaining an efficient information service. The functions and responsibilities of the trustees are illuminated: the library's relation to the town officers and to the Town Planning Board; administration policies—records and practices, book buying, plant and structures; methods and materials of library publicity and interpretation; the library's clientele and the cost of serving it; the look into the future—attacking unfinished projects, improving technique and personnel standards, broadening scope;—all these points of the Montclair program are presented. The Appendix gives many important details of organization and administration—rules, costs, budgeting, and includes the findings of the Ranck survey of the Montclair Free Public Library in 1926, with statements of progress made in following the recommendations in the succeeding four years.

County Poor Farms

The Kansas Emergency Relief Committee issued, under date of October 1, 1935, "A Study of Kansas Poor Farms," which is the third of a series of studies of social problems in Kansas, and their social and economic costs. It is designated as Bulletin KERC No. 307, and covers 46 quarto pages. The future of the poor farm in Kansas is under consideration and rests on the analysis and interpretation of conditions revealed by financial and statistical data and by a survey of every phase of poor farm administration in the state, and thorough case studies of inmates and the conditions attending their lives. The work was carried on from February to September, 1935. The state poor relief system is shown to present no minimum standards for public institutions for the aged and infirm, placing slight emphasis on the qualifications of personnel in charge of poorhouses, and providing little local and no state supervision of these institutions. (Apply to John G. Stutz, Executive Director, The Kansas Emergency Relief Committee, Topeka, Kans.)

Schools

The Thirty-seventh Annual Report of the Superintendent of Schools of the City of New York (1934-1935) is an unusual presentation of a city's educational system, under the title "All the Children," based on a quotation from the state constitution regarding the Legislature's duty to provide free common schools "wherein all the children of this state may be educated." In its 136 11⅛ x 14 pages it shows, with a wealth of fine photographs, drawings, charts, tables and impelling text, how New York is "making the largest school system in the world the smallest" through individuation of instruction in the elementary and secondary schools, by which children are "no longer considered as Ford cars or pickets in a fence." The statistical material on administration, costs, building program, all is made applicable to this same vital principle of bringing the individual to his place of highest efficiency. The report was prepared under the supervision of Howard A. Shiebler, Secretary to Harold G. Campbell, Superintendent of Schools. (Apply to Board of Education, 500 Park Avenue, New York City.)

Planning

Regional Planning.—By Karl B. Lohmann, Professor of Landscape Architecture, University of Illinois. Published by Edwards Brothers, Inc., Ann Arbor, Mich. 143 *photo offset pp. Maps, drawings, photographs.* $4.00.

This is an illuminating textbook on the subject. "In a general way the region is a name for man's concept of the entity of an area" having "similar environment and culture, unity, community of purpose, interest, character and usefulness." The natural conditions and the progressive development that have created such entities are analyzed, and what has been done and may still be done to plan these units to serve effectively as centers of production, distribution and prosperity is presented with interesting detail and many references to authentic publications. The chapters on "People in the Planning Picture," "Considering the Communities (Old and New) in the Region," and "Architectural Features of the Region" stress the significance of the human element. Important chapters discuss decentralization, zoning, and the regional viewpoint in sanitation; the planning of highways, railways, waterways, airways, and providing open spaces. How the picture unfolds in its possibilities is shown in the discussions of planning in metropolitan areas, counties, states and the nation, and practical procedure in regional planning is outlined. The many lines of thought that are coordinated in this book express a high ideal of betterment and happiness.

The Minutes of the Proceedings of the Conference on State Planning Administration, held in Chicago December 12 and 13, 1935, are issued by the American Society of Planning Officials in a pamphlet of 103 mimeographed pages. $1.00. This first national conference on state planning administration brought together many who are engaged and interested in the progress of planning, through whose questions and analysis the whole subject of the function, personnel, relationships, power, authority, scope, and procedure of state planning boards was made clearer and more effective. (Apply to the American Society of Planning Officials, 850 E. 58th St., Chicago, Ill.)

Housing

"Housing for the Family" is a study of housing essentials compiled from interviews with New York housewives and issued by the Committee on Housing of the Women's City Club of New York (22 Park Avenue, New York), March, 1936. Here is something definite, practical, comprehensive, and broadminded. The findings, secured by interviewing 1,450 housewives, are presented in a humanly straightforward, enlivening way, not only in narrative, but tabulated with inescapable directness. Eighteen pages of drawings by Marcia Mead, A. I. A., present, with comments, plans illustrating the basic principles of low-rental housing as the Committee conceives them. Gladys A. LaFetra is the Chairman of the Committee. 58 pp. 25c. (Apply to the Women's City Club of New York.)

Municipal Finance

The University of Texas Bulletin for March 1, 1936, is "A Debt Administration Manual for Texas Cities," prepared by J. T. Barton, Research Assistant in the Bureau of Municipal Research. It is issued as Study No. 16 of the Bureau of Research in the Social Sciences; and Municipal Studies, No. 5. 109 pp. It reflects common practice in the 52 cities which responded to a questionnaire sent to 58 cities. Personal visits were paid to some thirty of these municipalities in connection with this study. In the opening chapter the author outlines the interest which each of five groups has in a sane debt policy—taxpayers, city officials, state government, purchasers of municipal obligations, and bond brokers. The succeeding chapters discuss: the issuance and sale of city obligations; refunding operations; procedure in paying the periodical principal and interest charges on funded indebtedness; essential administrative aids to a sound debt program, features which should characterize security issues, and information on local indebtedness which a city should keep available; and, finally, the relationship of the state government to local indebtedness. Many references, and an index. (Apply to the University, at Austin, Texas.)

An Important Anniversary Celebration

A distinguished publication has been brought into service again—*The Newarker*. In 1915, under the guidance of John Cotton Dana, Librarian of the Public Library, it became the city's official bulletin and was active in presenting the programs of the commemoration of the 250th anniversary of the settlement of Newark on the banks of the Passaic. At intervals since then it has been the bulletin of the Chamber of Commerce. This publication has now taken a new assignment. On March 1, 1936, No. 1 of the Centennial Volume appeared, officially designated as The Bulletin for the Celebration of the 100th Anniversary of the Incorporation of the City of Newark. It is planned to be issued fortnightly for four months. An editorial board of distinction is in charge and will offer material of special historical value, announcements and reports of events of the celebration, with a presentation of much of the socially constructive activity of its first editor. The first number contains an article by John R. Hardin, Chairman of the Citizens Committee of One Hundred, on "Why Celebrate the Centennial?" and one on "Newark Becomes a City—The Story of Williams Halsey, the First Mayor," by Henry Young. Historical material of much interest is reproduced, and there are reports of the various committees of the Celebration. (Address *The Newarker*, the Public Library, 5 Washington St., Newark, N. J.)

Housing

"A Review of Modern Housing in Europe" is a paper by Eugene Weston, Jr., architect, A. I. A., delivered before the Association of City Planners of Los Angeles County on March 14, 1936. It is distributed by the Civic Development Department of the Los Angeles Chamber of Commerce. 13 mimeographed sheets. The paper traces the conditions which have brought about housing shortages in American and European cities, and of the progress that has been made to provide decent and healthful living conditions in England and on the Continent. Special attention is given to Welwyn Garden City, near London, to the garden suburbs of Stockholm, Sweden, and to the zoning and planning control in operation in Helsingfors, Finland. (Apply to the Los Angeles Chamber of Commerce, Los Angeles, Calif.)

Other Reports Received

BALTIMORE, MD.—"Cradle of Municipal Music" (revised edition), by Kenneth S. Clark. 1936. Republished by the city. 39 pp.

CHICAGO, ILL.—Leisure Time Directory, 1936. Recreation Commission. Small pocket size. 79 pp. (Send 3c in stamps to Municipal Reference Library, 1005 City Hall, Chicago.)

CONNECTICUT.—Public Utilities Commission, January 20, 1936. Findings and Order in the Matter of the Petition of the City of Torrington re the Rates and Charges of the Torrington Electric Light Company. 32 pp.

HAMILTON, OHIO.—"Our City—One Hundred Twenty-Five Years of Municipal Progress." November 24, 1935. 88 quarto pp.

HAWAII.—Report to the Governor of the Territory by the Superintendent of Public Works, year ending June 30, 1935. 77 pp., including many folding pp. of tables; pocket containing 6 folding maps.

MARQUETTE, MICH.—Annual Reports, 1935. (Commission government.) 83 pp.

PHILADELPHIA, PA.—Two addresses (March 7, 1936) to the members of the Philadelphia Housing Association: "On the State of Housing in Philadelphia Today," by Bernard J. Newman, Director, Philadelphia Housing Association, 5 mimeographed sheets; "Housing," by N. Max Dunning, Special Assistant to Public Works Branch, Procurement Division, Treasury Department, 10 mimeographed pp.

REMSEN, IOWA.—Annual Report, Municipal Utilities, 1935. 9 pp.

WILMINGTON, DEL.—Annual Report, Chief Engineer, Water Department, fiscal year, 1934-35, 101 pp.

"A Brief Explanation of the Social Security Act." April, 1936. Informational Service Circular No. 1 of the Social Security Board, Washington, D. C. 16 pp.

Federal Power Commission.—Annual Report, 1935. 343 pp.

A Statement in Opposition to the Establishment of a Municipal Power and Light Plant in New York City and to the Creation of Municipal Power Authorities.—26 pp.

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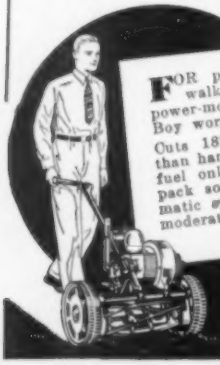

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Readers of THE AMERICAN CITY desiring to secure catalog or price lists on any sort of machinery equipment or supplies for municipal or county work are invited to state their wishes to the Catalog and Price List Department, The American City, 470 Fourth Ave., New York. One letter to us will secure you the information you desire free of all charge, and at a considerable saving of time and correspondence.

Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

MAY 3-6.—RICHMOND, VA.
Joint Conference on Planning. American City Planning Institute; Secretary, Howard K. Menhinick, Hunt Hall, Cambridge, Mass. *American Planning and Civic Association;* Executive Secretary, Miss Harlean James, 901 Union Trust Building, Washington, D. C. *American Society of Planning Officials;* Executive Director, Walter H. Blucher, 850 East 58th Street, Chicago.

MAY 11-16.—RICHMOND, VA. (2,000)
American Library Association. Annual conference. Secretary, Carl H. Milam, 520 North Michigan Avenue, Chicago, Ill.

MAY 11-12.—COLUMBIA, MO.
Missouri Association of Mayors and Other Municipal Officials. Annual meeting. Executive Secretary, George A. Spencer, 412 Guitar Building, Columbia, Mo.

MAY 11-12.—COLUMBIA, MO.
Missouri Association of Municipal Utilities. Annual convention. Secretary-Treasurer, W. J. McCarroll, Fulton, Mo.

MAY 11, WEEK OF.—ATLANTIC CITY, N. J.
National Fire Protection Association. Annual convention. Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston, Mass.

MAY 14-16.—ABERDEEN, WASH.
American Water Works Association—Pacific Northwest Section. Annual meeting. Secretary, Ernest C. Willard, 720 Corbett Building, Portland, Ore.

MAY 14-16.—ATLANTA, GA. (600)
Association of County Commissioners of Georgia. Annual convention. Acting Secretary-Treasurer, Tate Wright, Athens, Ga.

MAY 14-15.—FREDERICK, MD.
Maryland-Delaware Water and Sewerage Association. Annual conference. (Francis Scott Key Hotel.) Secretary, A. W. Blohm, 2411 North Charles Street, Baltimore, Md.

MAY 20-21.—ASBURY PARK, N. J.
Eastern Safety Conference. Manager, Fred M. Rosseland, 24 Branford Place, Newark, N. J.

MAY 22-23.—ATLANTIC CITY, N. J. (500)
American Public Welfare Association. Annual conference. Director, Fred K. Hoehler, 850 East 58th Street, Chicago, Ill.

MAY 24-30.—ATLANTIC CITY, N. J.
Association of Community Chests and Councils, Inc. Annual meeting. Executive Vice-President, Allen T. Burns, 31st Floor, Commerce Building, New York.

MAY 24-30.—ATLANTIC CITY, N. J. (5,000)
National Conference of Social Work. Annual conference. General Secretary, Howard R. Knight, 82 North High Street, Columbus, Ohio.

MAY 25-28.—NEW ORLEANS, LA. (1,000)
National Association of Purchasing Agents. Annual convention. Secretary-Treasurer, G. A. Renard, 11 Park Place, New York.

JUNE 1.—PHILADELPHIA, PA.
Pennsylvania State Association of Township Commissioners. Annual convention. (Bellevue Stratford Hotel.) Secretary-Treasurer, H. A. Fritschman, Eagle and Darby Roads, Upper Darby, Pa.

JUNE 2-5.—ATLANTA, GA.
Smoke Prevention Association. Annual convention. Secretary, Frank A. Chambers, 1411 City Hall Square Building, Chicago, Ill.

JUNE 3-5.—KINGSTON, N. Y.
Conference of Mayors and Other Municipal Officials of the State of New York. Annual meeting. (Hotel Governor Clinton.) Secretary, William P. Capes, City Hall, Albany, N. Y.

JUNE 8-12.—LOS ANGELES, CALIF.
American Water Works Association. Annual convention. (Hotel Biltmore.) Secretary, Beekman C. Little, 29 West 39th Street, New York.

JUNE 9-12.—WASHINGTON, D. C.
National Conference on Weights and Measures. Annual conference. Secretary, F. S. Holbrook, Bureau of Standards, Washington, D. C.

JUNE 10-12.—DETROIT LAKES, MINN. (450)
League of Minnesota Municipalities. Annual convention. Executive Secretary, C. C. Ludwig, University of Minnesota, Minneapolis, Minn.

JUNE 11-12.—ELGIN, ILL. (100)
Illinois Association of Sanitary Districts. Annual meeting. (Fox Hotel.) Secretary-Treasurer, G. H. Radebaugh, Urbana-Champaign, Ill.

JUNE 12-13.—WILLIAMSPORT, PA. (75)
Pennsylvania Association of Planning Commissioners. Annual convention. Secretary-Treasurer, Arthur Cassell, City Planning Commission, Allentown, Pa.

JUNE 15-19.—LOS ANGELES, CALIF.
Institute of Government. Annual session. (University of Southern California.) Executive Secretary, Prof. W. Ballentine Henley, 3551 University Avenue, Los Angeles, Calif.

JUNE 22-26.—PASADENA, CALIF.
American Institute of Electrical Engineers. Annual summer convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

JUNE 22-23.—VANCOUVER, B. C.
Conference of State and Provincial Health Authorities of North America. Secretary, Dr. A. J. Chesley, State Board of Health, St. Paul, Minn.

JUNE 23-25.—HARTFORD, CONN. (800)
New England Association of Fire Chiefs. Annual convention. Secretary-Treasurer, John W. O'Hearn, 99 Main Street, Watertown, Mass.

JUNE 24-26.—LETHBRIDGE, ALTA.
Union of Alberta Municipalities. Annual convention. Secretary-Treasurer, J. E. Fraser, Wetaskiwin, Alta.

JUNE 24-26.—VANCOUVER, B. C.
Canadian Public Health Association. Annual meeting. General Secretary, Dr. J. T. Phair, Spadina House, Toronto, Ont.

JUNE 24-26.—STATE COLLEGE, PA.
Pennsylvania Sewage Works Association. Annual conference. Secretary, L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 25-27.—OQUAGA LAKE, N. Y.
New York State Secretaries' Conference. Annual convention. Secretary-Treasurer, J. Kennard Johnson, Chamber of Commerce, Binghamton, N. Y.

JUNE 26-27.—PITTSFIELD, MASS.
New England Association of Commercial Executives. Annual meeting. Secretary, Peter Foley, Norwich, Conn.

JUNE 26-28.—STATE COLLEGE, PA.
Pennsylvania Water Works Operators' Association. Annual convention. Secretary-Treasurer, I. M. Glace, 20 South 22d Street, Harrisburg, Pa.

JUNE 28-JULY 2.—PORTLAND, ORE. (10,000)
National Education Association of the United States. Annual meeting. Secretary, Willard E. Givens, 1201 16th Street N. W., Washington, D. C.

JULY 15-17.—RAPID CITY, S. DAK.
League of South Dakota Municipalities. Secretary, Dr. G. R. Breckenridge, University of South Dakota, Vermillion, S. Dak.

JULY 20-24.—STILLWATER, OKLA.
Oklahoma Water and Sewage Conference. Annual conference. Secretary-Treasurer, H. J. Darcy, State Sanitary Engineer, Oklahoma City, Okla.

JULY 21-24.—TORONTO, ONT.
International Association of Fire Chiefs. Annual convention. (Royal York Hotel.) Secretary, James J. Mulcahey, Yonkers, N. Y.

JULY 21-23.—NORRISTOWN, PA. (250)
Pennsylvania Chiefs of Police Association. Annual convention. Secretary, F. B. Titus, Lansdowne, Pa.

JULY 27-29.—VANCOUVER, B. C.
Union of Canadian Municipalities. Annual meeting. Secretary-Treasurer, Mrs. J. S. Giles, Lachute, Que.

AUGUST 2-8.—EVANSTON, ILL.
National Institute for Commercial and Trade Organization Executives. Annual session. (Northwestern University.) Secretary, John N. Van der Vries, 607 First National Bank Building, Chicago, Ill.

AUGUST 19-21.—CLEVELAND, OHIO.
American Water Works Association—Central States Section. Annual meeting. (Hotel Cleveland.) Secretary, H. L. Nelson, 2435 Koppers Building, Pittsburgh, Pa.

AUGUST 31, WEEK OF.—BUFFALO, N. Y.
Illuminating Engineering Society. Annual convention. (Statler Hotel.) General Secretary, D. W. Atwater, 29 West 39th Street, New York.

SEPTEMBER 2-4.—BOSTON, MASS. (300)
National Shade Tree Conference. Annual convention. (Hotel Statler.) Secretary-Treasurer, Dr. R. P. White, New Jersey Agricultural Experiment Station, New Brunswick, N. J.

SEPTEMBER 2-4.—TORONTO, ONT.
Ontario Municipal Association. Annual meeting. Secretary-Treasurer, H. L. Brittain, 137 Wellington Street W., Toronto, Ont.

SEPTEMBER 16-17.—PARIS, KY.
The Kentucky Municipal League. Annual convention. Executive Secretary, Carl B. Wachs, Municipal Building, Lexington, Ky.

SEPTEMBER 21-23.—CINCINNATI, OHIO. (350)
American Institute of Park Executives and the American Park Society. Annual convention. Executive Secretary, William H. Walker, 2234 Inglewood Place, South Bend, Ind.

SEPTEMBER 21-24.—WHITE SULPHUR SPRINGS, W. VA. (1,000)
American Transit Association and affiliated organizations. Annual convention. General Secretary, Guy C. Hecker, 292 Madison Ave., New York.

SEPTEMBER 21-24.—KANSAS CITY, MO. (600)
International Association of Chiefs of Police. Annual convention. Secretary, George Black, Wilmington, Del.

SEPTEMBER 22-25.—NEW YORK CITY.
New England Water Works Association. Annual convention. (Pennsylvania Hotel.) Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 24-25.—MANITOWOC, WIS.
League of Wisconsin Municipalities. Annual convention. Secretary, Frederick MacMillin, 114 North Carroll Street, Madison, Wis.

SEPTEMBER 28-30.—TORONTO, ONT.
American Society of Municipal Engineers. International Association of Public Works Officials. Public Works Congress. Executive Director, Frank W. Herring, 850 East 58th Street, Chicago, Ill.

OCTOBER 5-9.—ATLANTIC CITY, N. J. (6,000)
National Safety Council. Annual Safety Congress and Exposition. Managing Director, W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

OCTOBER 12-15.—FORT SMITH, ARK.
American Water Works Association—Southwest Section. Annual convention. (Hotel Goldman.) Secretary-Treasurer, Lewis A. Quigley, Fort Worth, Texas.

OCTOBER 14-16.—ATLANTIC CITY, N. J.
Pennsylvania Water Works Association. Annual convention. (Haddon Hall.) Secretary, Dr. F. Herbert Snow, Telegraph Bldg., Harrisburg, Pa.

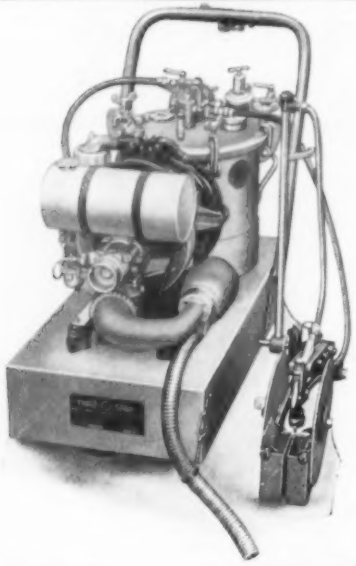
OCTOBER 19-21.—RICHMOND, VA. (200)
International City Managers' Association. Annual convention. Executive Director, Clarence E. Ridley, 850 East 58th Street, Chicago, Ill.

OCTOBER 20-23.—NEW ORLEANS, LA.
American Public Health Association. Annual meeting. Executive Secretary, Dr. Reginald M. Atwater, 50 West 50th Street, New York.

OCTOBER 26-28.—KANSAS CITY, MO.
American Water Works Association—Missouri Valley Section. Annual meeting. Secretary, Earl L. Waterman, University of Iowa, Iowa City, Iowa.

OCTOBER 26-28.—CHARLOTTE, N. C.
American Water Works Association—North Carolina Section. Annual convention. (Hotel Charlotte.) Secretary, M. F. Trice, State Board of Health, Raleigh, N. C.

NOVEMBER 8-11.—OMAHA, NEBR.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, R. W. Nelson, Chamber of Commerce, Cincinnati, Ohio.



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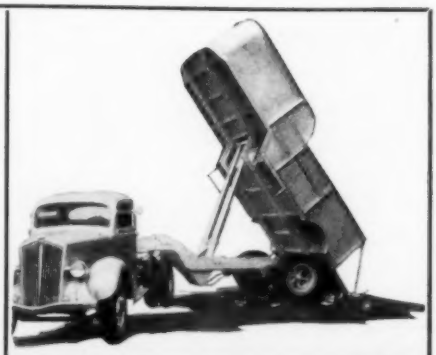

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SPRINGFIELD, OHIO

News and Illustrations

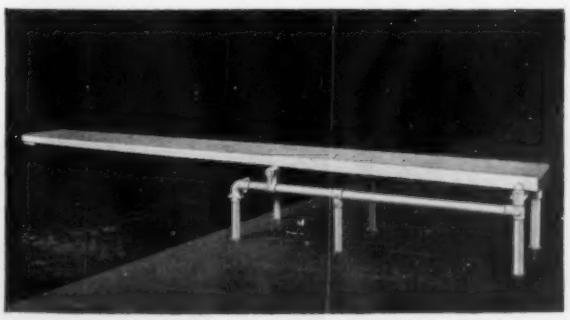
Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Diving Boards for Municipal Pools

A diving board is not just a diving board—there are a number of different kinds constructed of various woods, some of a single piece while others are made of multiple piece construction. Each is designed for use under specific working conditions; therefore, it is not advisable to select any particular board without knowing that it would be recommended for use on the particular supporting stand on which you expect to use it.

The official regulation boards are made to lie loose on the fulcrum, whereas oak springboards are held down at the fulcrum point by a wrought iron strap. If either a 14-foot or a 16-foot one-piece board is installed with a hold-down strap or clamp of any kind at the fulcrum bearing, its life will be materially shortened —and any manufacturer will refuse to make any adjustment or replacement because of the breakage. Pool owners and manufacturers have both experienced grief from breakage of boards. While breakage is sometimes due to a hidden defect in the timber, it is not infrequent that a board is used with a much shorter fulcrum distance than called for by the A.A.U. regulations and as shown by the manufacturer's drawings. Of this condition the owner or operator is usually not aware, and feels justified in assuming that inferior material has been furnished; but the manufacturers have not been entitled to all the criticism passed on to them.

No two boards of any type or material will have the same action or length of life. Experience has shown that a board of multiple-piece construction will give longer life than a single-piece board. The American Playground Device Co., Anderson, Ind., is prepared to furnish boards of the official regulation dimensions at the same prices, for use under the same working conditions; and their use will reduce owner's expense and grief caused by board breakages.



A 1-METER DIVING UNIT WITH 2-INCH GALVANIZED PIPE FRAME

The one meter diving unit illustrated has a 2-inch galvanized pipe frame; the fulcrum is a steel bar with a vulcanized rubber covering and is readily adjustable.

Two-Stage, High-Pressure Rotary Air Compressors

Two-stage rotary air compressors producing pressures up to 100 pounds have been produced by the Allis-Chalmers Manufacturing Co., Milwaukee, Wis., in its "Ro-Twin" compressor. Formerly, two-stage rotary compressors of the sliding vane type were formed by coupling together two cylinders and operating them in series, with an external intercooler between the stages. This construction necessitated two couplings, and three or four stuffing-boxes, as well as a number of air connections outside the unit.

In the Ro-Twin compressor, both stages, as well as the intercooler, are contained in a single casing, making an extremely compact unit. The air passes directly from the first stage to the intercooler and thence to the second stage without leaving the cylinder. Only one stuffing-box is necessary, and that on the low-pressure side, and only one coupling, making alignment with the driving machine very simple. The intercooler is very compact, owing to the use of finned tubing, and is easily accessible for maintenance.

As in all A-C rotary compressors, there are two floating rings, one in each stage, which prevent the blades from bearing on the casing. A ball thrust bearing maintains the rotor in alignment. A special metallic seal between the stages, of a type which needs no replacement, prevents leakage from the high- to the low-pressure side.

These compressors are provided with an automatic unloader comprising an air-operated, spring-loaded suction valve controlled by a pressure governor. The governor is so arranged that when a predetermined maximum pressure is reached, compressed air is admitted to a piston, closing the suction valve. Simultaneously, the check-valve in the discharge line closes and a by-pass opens from the discharge to the suction, completely unloading the compressor, the speed remaining constant. These compressors are built for electric motor drive.

Boye of Socony-Vacuum Again Heads Institute

The Board of Directors of the Asphalt Institute, representing three-quarters of the asphalt-producing industry of the United States and Canada, re-elected B. L. Boye, of Socony-Vacuum, as President of the Institute for the fiscal year beginning April 1. At the same time it was announced that the Allied Materials Corporation of Oklahoma City had been elected to membership, with C. W. Barbour as its representative in the Institute Directorate.

Other officers elected at the annual meeting were: J. A. Blood (Standard Oil Co. of California), Vice-President; Leroy M. Law (Shell Petroleum Corporation), Vice-President; T. M. Martin (Lion Oil Refining Co.), Vice-President; A. M. Maxwell (Standard Oil of Ohio), Vice-President; C. W. Bayliss (Barber Asphalt Co.), Chairman of Executive Committee; Herbert Spencer (Standard Oil of New Jersey), Treasurer; J. J. Gartland (Texas Co.), Secretary; J. S. Helm, of the Standard Oil Co. of New Jersey, succeeded W. W. McFarland, of the Warner-Quinlan Co., as a member of the Executive Committee; and J. E. Pennybacker continues as Managing Director of the Asphalt Institute.

Pittsburgh Equitable Makes New Appointments

The Pittsburgh Equitable Meter Co. and its subsidiary, the Merco Nordstrom Valve Co., Pittsburgh, Pa., has announced the appointment of Ray Jerge to its sales force. Mr. Jerge will operate from the Buffalo office. This company has also announced that K. G. Myrberg has joined its sales force. After several years of field and executive work with two Midwestern railroads, Mr. Myrberg joined the National Cast Iron Pipe Co. in 1923. He has been with this company and its successor, James B. Clow & Sons, until his recent appointment. Mr. Myrberg will operate from the Des Moines, Iowa, office of Pittsburgh Equitable Meter.

Pacific Flush Tank Elects New Officers

At the forty-third annual meeting of the Pacific Flush Tank Co., Chicago, Ill., held recently, the following officers were elected for the ensuing year: Lester E. Rein, President; Harry E. Schlenz, Vice-President; D. M. Burwell, Treasurer; L. E. Langdon, Secretary. The eastern office in New York City continues under the management of Leonard L. Langford, at 441 Lexington Ave.

. . . the vital, unseen parts must give service to provide safety

Harmonious design of street lighting standards and glassware is highly desirable. But *unfailing performance* is a real goal, and its attainment depends in large measure on the quality of the small, vital, unseen parts . . . sockets, receptacles, film cut-outs.

Film cut-outs typify the importance of these parts in the modern street lighting system. They are important connecting links, and their failure to operate properly may cause radio and telephone interference, serious lamp outages or damage to equipment. Yet the *foolish economy* of using matchsticks, tin foil and similar odds and ends in place of calibrated film cut-outs is a common, costly practice. It may result in untold traffic accidents and damage.

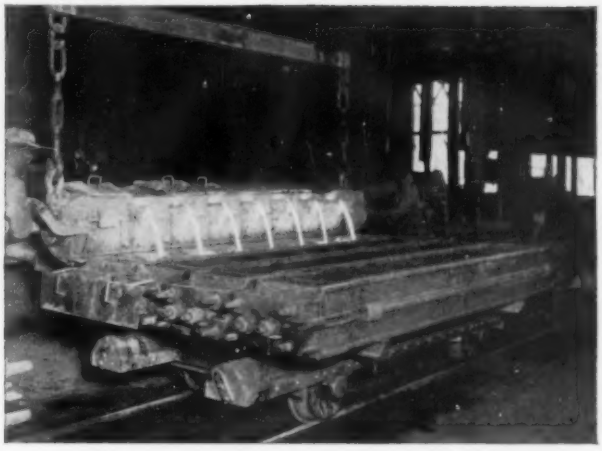
Westinghouse, largest maker of lighting equipment, makes each of these vital street lighting parts with the same, careful built-in quality that marks all Westinghouse equipment. Each Westinghouse film cut-out is individually tested at the factory. Sockets and receptacles are made of high-grade porcelain with sturdy current carrying parts heavily nickel-plated to insure perfect contacts.

It will pay you to check your street lighting system now. Be sure it is equipped to insure *unfailing* service by using Westinghouse renewal parts. Your Westinghouse distributor will be glad to work with you, or write Westinghouse Electric & Manufacturing Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

WHEN YOU THINK OF *Lighting* THINK OF

Westinghouse

TESTING AN 18-FOOT ASSEMBLED LENGTH OF 2-INCH McWANE PIPE WITH 90 POUNDS AIR PRESSURE, UNDER WATER



POURING 2-INCH 9-FOOT McWANE PIPE WITH SEVEN-LIPPED LADLE UNDER HEAT-CONTROL

Casting 9-Foot Lengths of McWane 2-Inch Pipe

A new foundry unit has been established by the McWane Cast Iron Pipe Co., Birmingham, Ala., for making 2-inch cast iron service pipe in 9-foot lengths. This 2-inch pipe is now made by the same mechanical methods long used in casting larger sizes of pipe, and the pipe is produced in 9-foot lengths instead of the conventional 5- or 6-foot lengths.

Many new methods and devices have been installed to increase production and to assure accuracy and quality in every length of pipe. Sand molds are prepared with remarkable accuracy, and instead of transporting the molten metal a considerable distance to the mold, the mold is moved close to the source of the molten iron.

A different "mix" of iron is employed in this foundry for each different size of pipe. A predetermined mixture kept under rigid heat control for use only in 2-inch pipe is poured into the mold at a specific temperature. For the 9-foot lengths of 2-inch pipe, the molten metal is poured from a special horizontal ladle with seven lips. The streams enter the molds simultaneously through seven openings, divided into fourteen streams, and fill the space between the mold and core almost instantly. Each length of pipe is subjected to 500 pounds hydrostatic pressure, and while under this pressure is rapped sharply with a hammer to develop any latent defects.

After dipping in the standard tar mixture to coat the pipe, it is taken to the joint-making department. The majority of the 2-inch pipe goes to the threading machine. This threading on the McWane type of pipe does not weaken it, because the bell-and-spigot ends are reinforced by increasing the outside diameter of the pipe. This permits a full inside diameter with no restriction of flow, yet allows the cutting of 2-inch oversize thread on a 2-inch pipe. After threading, two lengths are hooked up into a 18-foot laying-length of pipe, and this length is tested with 90 pounds of air pressure while the pipe is immersed in water to insure a positive joint.

Since much of the pipe is laid by unskilled labor, in park and street departments as well as by the regular waterworks forces, it is important that the jointing in the trench require no special paraphernalia or experience. For this reason, a large percentage of the pipe is equipped with the well-known McWane pre-calked joint, a lead joint poured into the pipe bells on top of a ring of California redwood wedges, and around a pattern slightly larger than the spigot end diameter of the pipe. This lead is then pre-calked for the one-third of the joint that is to rest on the bottom of the trench, to do away with need for lead-pouring or bell-holes in laying. The pattern is then withdrawn, protecting cylinders inserted, and the pipe is ready for shipment.

Motor Trucks and Fire Engine Co. Merge

The merger of The LeBlond-Schacht Truck Co. and The Ahrens-Fox Fire Engine Co., both of Cincinnati, Ohio, was ratified by stockholders of the two companies on March 30, 1936. This plan brings under one roof two of the oldest automotive concerns in the country—the fire engine company continuing as a branch of the truck company, and maintaining the Ahrens-Fox name.

The present executive personnel will continue, both Mr. Fox and Mr. Ahrens being nationally known figures in pioneering improvements and innovations in fire-fighting apparatus.

The Ahrens-Fox Company is the outgrowth of the company which manufactured the first steam fire engine in Cincinnati in 1853. The present company was incorporated in 1905. Charles H. Fox has been a leader in the industry for more than forty years, while Chris Ahrens, father of the present Vice-President, John F. Ahrens, was associated with the early development of the steam fire engine.

The LeBlond-Schacht Co. was founded by G. A. Schacht, one of the pioneers in the automotive industry. The company was incorporated in 1913 as the G. A. Schacht Motor Truck Co. The name was changed in 1927. Prior to the advent of the automobile, Schacht was engaged in the manufacture of ball-bearing buggies.

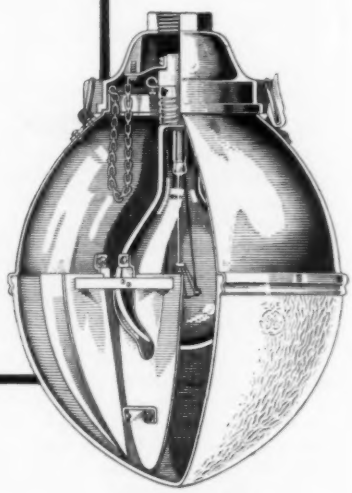
Activated Carbon Distributors

The General Carbon & Chemical Corporation, Monroe, La., manufacturers of Magnechar, an activated carbon for removing taste, color and odor from domestic water supplies, has announced the following distributors, who are prepared to give complete information and quotations on the use of Magnechar for water purification plants: Bartlett Chemicals, Inc., 917 Tchoupitoulas Street, New Orleans, La.; Chamberlain Co., Inc., 2550 East Ninth Street, Los Angeles, Calif.; Iowa Soda Products Co., Council Bluffs, Iowa; Lindheim & Co., P. O. Box 39, Laredo, Texas; United Chemical Co., Tower Petroleum Building, Dallas, Texas; The Refinery Supply Co., 621 East 4th Street, Tulsa, Okla.; Western Filter Co., 1209 Champa Street, Denver, Colo.; Wishnick-Tumpeer, Inc., 365 East Illinois Street, Chicago, Ill.; Wishnick-Tumpeer, Inc., 616 St. Clair Avenue, N. E., Cleveland, Ohio; Wishnick-Tumpeer, Inc., 295 Madison Avenue at 41st Street, New York.

Line Material Celebrates Quarter-Century

Line Material Co., Milwaukee, Wis., manufacturers of electric transmissions and distribution and street-lighting equipment, is celebrating its 25th anniversary this year. Twenty-five years ago there was just one little shop; today there are seven well-equipped Line Material Co. plants throughout the country, producing a large line of electrical power distribution equipment and specialties. There are forty-five warehouses and thirty sales-service offices located in principal industrial centers to maintain this constructive teamwork.

Voters judge your administration by the good it does



A VITAL PART
of Your Safety Program

55% more light
No disturbing glare
Lower cost

Proper lighting can save half the lives lost annually in night accidents

If the accident record of your city is typical of the country at large, you will find this very surprising fact: Day accidents are decreasing. It is the terrific increase in night accidents which is causing the steady rise of the total.

Experience in city after city proves that street lighting can cut these night accidents in half. By saving lives and property, by preventing suffering and waste, street lighting will pay for itself many times over.

New, faster cars are demanding higher standards of lighting. New equipment is available. G. E.'s Form 79, for example, will for the same investment give you much more light on the street. New York City is installing 7000 of these new luminaires. Your city should know about them. Write to General Electric, Schenectady, N.Y., and ask for publication GEA-2276.

You pay for good street lighting whether you have it or not . . . with inadequate lighting, you pay in accidents, crime, and death.

500-175

GENERAL ELECTRIC

Do you mention THE AMERICAN CITY? Please do.

Smith Cutter Used In Atlantic City

A special 42-inch cutter designed specially by The A. P. Smith Manufacturing Co., East Orange, N. J., and attached to one of the power tapping machines used for making 36-inch and larger cuts, was used to make the 42-inch connection in a 60-inch main under pressure in Atlantic City, N. J., described on page 9 of the April issue of THE AMERICAN CITY. The A. P. Smith Manufacturing Co. was the contractor for this work, according to a statement received from T. F. Halpin, Secretary, The A. P. Smith Manufacturing Co.

A New Portable All-Purpose Fingerprinting Kit

The International "All-Purpose" Carrying Kit for fingerprinting by police departments consists of a substantial carrying case, 10 x 14 x 5 inches, covered with heavy morocco finish, black Karatol, corner bumpers, and chromium plate locks and hinges. It is provided with double round strap handles.

The two compartments are separated by an inner lid, which also provides space for holding some of the items. The case opens flat in the center, thus providing a complete fingerprinting desk when opened. One compartment contains everything needed for taking fingerprints. The other is equipped with all essential items for developing and lifting latent prints.

A full-size card holder for 8 x 8-inch cards is hinged to the left half of the case, and an ink slab is attached to the lid opposite. When not in use, the card holder folds back over the compartment, holding 100 fingerprint cards and 50 single print cards for filing under the Battley system. A notebook with loose-leaf specially printed sheets is another item which proves valuable for data pertaining to the particular job.

The articles contained in the kit are all regular items, including: 1 carrying case, 1 card holder, 1 ink slab, 1 ink roller, 1 2-oz. tube fingerprinting ink, 100 standard fingerprint cards, 50 single fingerprint cards, 1 magnifier, 1 2-oz. bottle black latent print powder, 1 2-oz. bottle white latent print powder, 1 2-oz. bottle gold latent print powder, 1 2-oz. bottle aluminum latent print powder, 1 roll transparent tape lifter with isinglass, 1 set tools for fingerprinting a corpse, 1 steel tape measure in roll case, 1 atomizer or spray gun, 2 camel hair brushes, 2 sheets black rubber lifters, 2 sheets white rubber lifters, 1 pair scissors, 1 flashlight, 1 note book, 1 bottle for cleaning liquid and 1 wiping cloth.

This Carrying Kit is made by the International Police Research Bureau, Boyer Building, Detroit, Mich.

New Automatic Light Switch

A new automatic light switch which is designed for installation in engine houses, central offices, and other places where there is need for automatically switching on lights upon the receipt of a fire alarm and switching them off again after a predetermined period has elapsed, has recently been brought out by The Gamewell Co., Newton, Mass.

This switch is of the motor-driven, definite time type and is designed to control the operation of two alternating-current, 115-volt, 60-cycle lighting circuits. The capacity of each circuit should not exceed 14 amperes. The controlling magnet is designed for operation in a 100-milliampere, direct-current, normally closed-series circuit.

The timing mechanism can be varied from approximately 2 to 7 minutes in 1-minute intervals, and is accumulative only when the armature of the controlling magnet of the timing relay is in the attracted position.

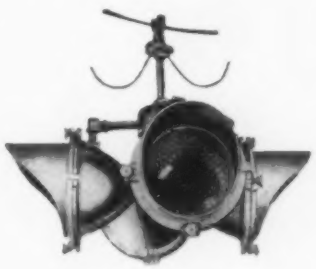
This switch consists of a motor-driven timing relay, a relay for controlling the operation of the timing relay motor and the light circuits, two tmbler type switches to cut off the lighting circuits manually, a tumbler type switch to shunt the controlling magnet of the timing relay for testing purposes or to condition the switch so that it does not respond to impulses over the circuit in which the controlling magnet is connected, and an eight-point terminal block, on which the terminals are separated by barriers. This equipment is mounted in a sheet-metal cabinet approximately 9 inches wide, 10½ inches high and 4½ inches deep. A satin-finish, brass-face plate is provided for the switches, and the cover which is held in place by four mounting screws, one in each corner, is easily removed. All parts of the equipment are separate units and are mounted individually on the back of the cabinet, so as to provide easy removal of any unit of the mechanism.

THE INTERNATIONAL ALL-PURPOSE PORTABLE FINGERPRINTING OUTFIT

Flashing Beacons to Warn Traffic

The new 72 series of NTC flashing beacons have been developed by the National Traffic Control Co., Fostoria, Ohio, to furnish a unit that can be assembled for side-arm mounting from a post or pole, for mounting on top of a 2-inch steel pipe, or for suspension over traffic. These models are particularly adapted for safety zones or other locations requiring one-way signals.

Model 72-C is a cluster of these units which can be suspended in the center of an intersection, each unit being adjustable in both horizontal and vertical planes. The horizontal adjustment compensates for streets entering the intersection at odd angles, and the vertical adjustment compensates for an up or down grade entering the intersection. By means of these two adjustments, the beam of light can be directed accurately to the approaching traffic lane.



A CLUSTER OF NTC FLASHING BEACONS

The units of this series are so designed that if it becomes advisable to change the type of installation, they can be disassembled easily and reassembled into the types required for the new arrangement, for all parts are standard and interchangeable. These units are made of cast aluminum and other non-corrosive parts. They are weatherproof and equipped with standard 8⅜-inch traffic-light lenses of red or amber in either the wide or the long range type. A parabolic glass reflector is used back of each lens with a standard 60-watt traffic-signal lamp. To replace the lamp requires the loosening of three thumbnuts, permitting the front to swing open. An NTC motor-driven flashing beacon control is used to operate the models of the 72 series.

All designs meet the specifications of the American Association of State Highway Officials and the National Conference on Street and Highway Safety.

FOR SALE • AN OUNCE OF
PREVENTION

An ounce of prevention is worth a pound of cure • A relatively small expenditure for increased illumination of city streets and highways will save lives, will prevent heavy economic loss • With adequate street lighting, traffic accidents, traffic fatalities, can be reduced as surveys have proved and records show • To the man behind the wheel, to the pedestrian on your streets, better Street Lighting means better Sight — Safety • L-M Street Lighting Equipment can make your streets safer • Write to Line Material Company, South Milwaukee, Wis. for information • Experienced Engineers, specialists in modern Street Lighting, are at your service to assist you •

LINE MATERIAL CO.
SOUTH MILWAUKEE · WISCONSIN · U · S · A

During May we hope you will remember to mention THE AMERICAN CITY

Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

Lighted Fountain Drew 800 Nightly

By W. H. ROMINE
Assistant Superintendent and Engineer of Parks, Davenport, Iowa

A FOUNTAIN for daytime and nighttime enjoyment was put into service last summer in Vander Veer Park, Davenport, by the Board of Park Commissioners. Although the park is in a residential district, attendance averaged 800 per night, due in large part to the shading and blending of colors possible with what is called Thyraton control of the seven floodlights. A centrifugal pump and a motor with electrically operated valves control the water jets.

The fountain consists of a reinforced-concrete pool 60 feet in diameter, the outer wall covered with Lannon weathered-edge limestone rock. Floodlights and jets are located in the upper portion of the central bowl, with all the equipment housed below. The submersible projectors are provided with colored lenses: two each of red, green and blue, and one amber. The amber lens is in the center, the other six projectors arranged symmetrically around it, with two projectors of each of the colors placed diametrically opposite each other. To give the resulting colors equal relative value to the eye, different-sized lamps are used in each of the projectors so that the blending will be most agreeable and no one color predominating.

The water equipment is located just above the projector grouping and consists of a center fire nozzle immediately over the amber flood, three spray nozzles at the points of a triangle around the center nozzle, and an outer ring of 65 jets.

Thus there are three different water effects, each on its own piping with individual thruster-operated electric valves controlled by a three-valve electric controller providing for as many as seven water effects. The water effects are independent of the lighting effects and may follow a totally different cycle. Thus, a color sequence and water combination is rarely operated during several hours' operation. The water can of course be manipulated during the daytime.

The idea of the lighting is a gradual change in brilliancy without flashing. The sequence operation of dimming or brightening the different colors is controlled by a tape type timer containing an endless tape with holes or slots as in a player-piano roll. The tape can be as long as desired, to give an increasing number of color effects. By means of contacts through the openings in the tape, one of the reversible telechron motors is made to raise or lower the iron core of a solenoid controlling one of the colors, which changes the reactance in the solenoid circuit and the grid voltage available to the Thyraton tube of that

THE FOUNTAIN IN VANDER VEER PARK, DAVENPORT, IOWA

INSIST ON GOOD STREET-LIGHTING GLASSWARE

The Streets of New York Are Lighted with GLEASON-TIEBOUT GLASSWARE

NEW YORK, one of the most active cities in the country in the wholesale revision of its street-lighting system, has adopted a new and revolutionary street-lighting luminaire. With the same amount of power, it nearly doubles the amount of light on the street; and in addition further improves "Seeing" by reducing the glare objectionable to motorists.

The new street light being installed in New York. General Electric's Form 79, with Gleason-Tiebout globe

Gleason-Tiebout glassware forms an important part of these new luminaires. Spun onto the reflector to form an insectproof, dustproof, and moistureproof seal, these globes keep reflectors and lamps absolutely clean — maintain their high light output. The strength of the rippled glassware will be a large factor in reduced maintenance costs.

Gleason-Tiebout glassware is made to meet the exacting specifications of General Electric engineers. These engineers will be glad to assist you in planning installations that will meet every requirement.

You pay for good street lighting, whether you have it or not . . . with inadequate lighting, you pay in accidents, crime, and death

GT-39

GLEASON-TIEBOUT GLASS COMPANY

99 COMMERCIAL STREET, BROOKLYN, N. Y.

When you write for that catalog, kindly mention THE AMERICAN CITY

circuit. A given position of the solenoid plunger produces a given light intensity for any one of the color circuits and gives light control which is both smooth and gradual.

With shorter slots in the tape, any color may be left in any position desired while the other colors are varied up and down, thus obtaining famed pastel shades.

We have no other floodlights in any of our parks, except at the Petersen Music Pavilion in Le Claire Park, from which band concerts are given each week during the season.

Glassless Luminaire

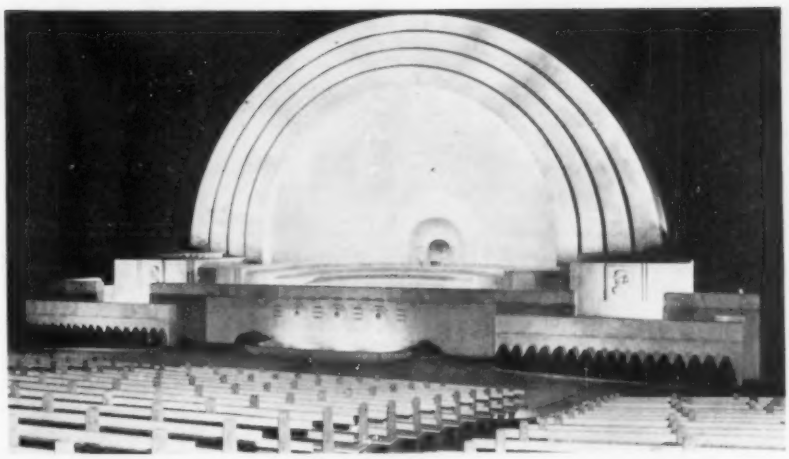
THIS is the new glassless Sansver luminaire which L. F. Heckmann of Line Material Co. says "on trial installation has shown that the lightings can be improved from 40 to 60 per cent" by cutting down glare.

Mercury Incandescent Floodlight

MERCURY and incandescent lamps, are now available for floodlighting. A 400-watt mercury lamp is mounted between two 100-watt incandescents. The blue-green mercury gives twice as much light for the energy consumed as do the yellow-white incandescents, and the blended light is superior to the light of either lamp. This combination has hitherto been restricted to street lighting.

Mercury Arc Lamps

"IT has been known for about 100 years that mercury arcs give a brilliant light," starts a paper presented before The Electrochemical Society on April 25. But "it has only been within the last three or four years that high-intensity lamps have been extensively exploited for ordinary illumination." The title of the paper is "The Characteristics of High-Intensity Mercury Arc Lamps," and the authors are J. W. Marden, G. Meister, N. C. Beese, Research Department, Westinghouse Lamp Co., Bloomfield, N. J.



Sioux City's Outdoor Music Pavilion

By C. R. TRACY

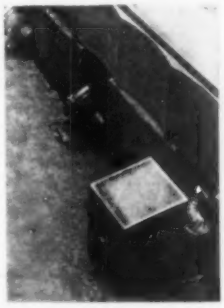
Illuminating Engineer, Sioux City Gas & Electric Co., Sioux City, Iowa

WHILE the recently completed Grandview Park Music Pavilion at Sioux City is pointed to as an achievement in restrained modernity, it is also an example of Greek starkness, as the accompanying night photograph shows.

The dominating feature of the structure is of course the closed arches that rise to a total of 51 feet. The structure is 102 feet wide. Seating is provided for 5,500 people, with room within the amphitheatre for 4,000 additional spectators.

The entire façade is floodlighted by 14 enclosed Curtis projectors, four of which are of the distributing type and are used, two on either side, to light the plaques of the figure "Faun" at the right and "Tragic Muse" at the left. The shadow, or shading, produced from these floodlighting projectors is very interesting, and the architect and sculptor are enthusiastic over the results. By brightly lighting the pavilion, the attention of the spectators is concentrated on the performance and on the beauty of the monument.

Ten Curtis projectors of the concentrating type flood with clear light the face of the great arch. These projectors are concealed in niches in the front and end walls. Arrangements were made for protecting them by means of metal covers, which are removed during concerts. Each projector uses a 250-watt lamp.



Behind the great concrete arch are 87 cove lights with color lenses: 35 blue, 18 red, 17 amber, 17 clear, each with a 100-watt lamp. Thus, changeable color cycles of light may be played on the arch and varied with the mood of the music. In the immediate foreground is a pool fed by three fountain heads on the face of the wall. They produce a fine spray of mist. Color lighting below the water level by means of nine G. E. submersible floodlights gives lovely effects that enhance the arch lighting.

Four Miles of Sodium for Rochester, N. Y.

THE largest installation of sodium lights in the United States will be in operation along a four-mile stretch of Summerville Boulevard on the outskirts of Rochester early this summer, officials of the Rochester Gas and Electric Corporation have announced in placing an order for 110 "golden light" luminaires with the General Electric Co.

The sodium method of illuminating the residential area was chosen by the Board of Supervisors of Monroe County, and will mark the first extensive use of sodium for this type of lighting. Heretofore the sodium unit has been used mostly for highway lighting.

The Summerville boulevard installation will bring back to the East the largest single stretch of sodium lighting, surpassing the three-mile highway stretch between Tacoma and Fort Lewis, Wash., where 66 units are now in operation.

The American City Professional Service Directory

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John W. Alvord — Chas. B. Burdick
Donald H. Maxwell — Louis R. Howson
Water Works — Sewage Disposal
Water Purification — Drainage
Flood Relief — Appraisals
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THE AMSLER-MORTON CO.
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